

# SCHOOL MANAGEMENT

October 1961

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PRACTICAL SOLUTIONS TO SCHOOL MANAGEMENT PROBLEMS

*A schoolman's  
guide to*

## TEACHING MACHINES

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How to  
avoid

## REGAIN

in  
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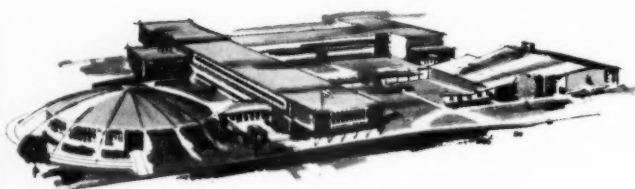
## do your teachers deserve tenure?

SEE COMPLETE CONTENTS ON PAGE 2





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OCTOBER 1961

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# SCHOOL MANAGEMENT

October 1961

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*Once a teacher has tenure, he's a permanent member of your school district. Here's how one district evaluates and screens probationary teachers, so that only the best are retained.*

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*For less than \$1,000 a year, schoolmen in Port Jefferson, N. Y. serve a steady supply of news to their public and 20 newspapers and radio stations. This article tells how it's done.*

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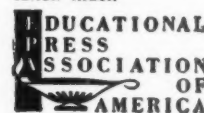
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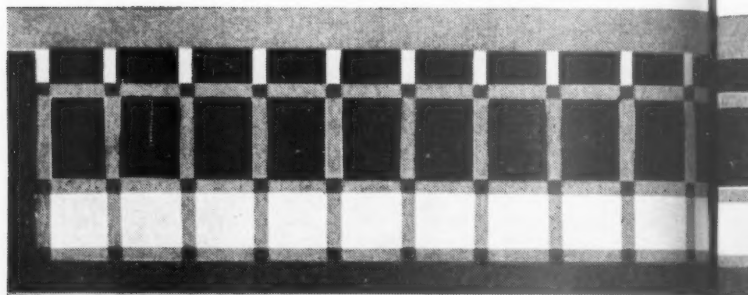


**the  
learning environment  
often stands or falls  
on decisions made when  
a school's specifications  
are drawn**

In many ways, the electrical environment of a school can contribute to its learning processes, its recreational facilities, administrative functions and to interior and exterior appearances. That's why it is important to make sure that the finest electrical products go into these environments, just as you make sure the school gets the right books for the learning environment. *You can be sure . . . if it's Westinghouse.*

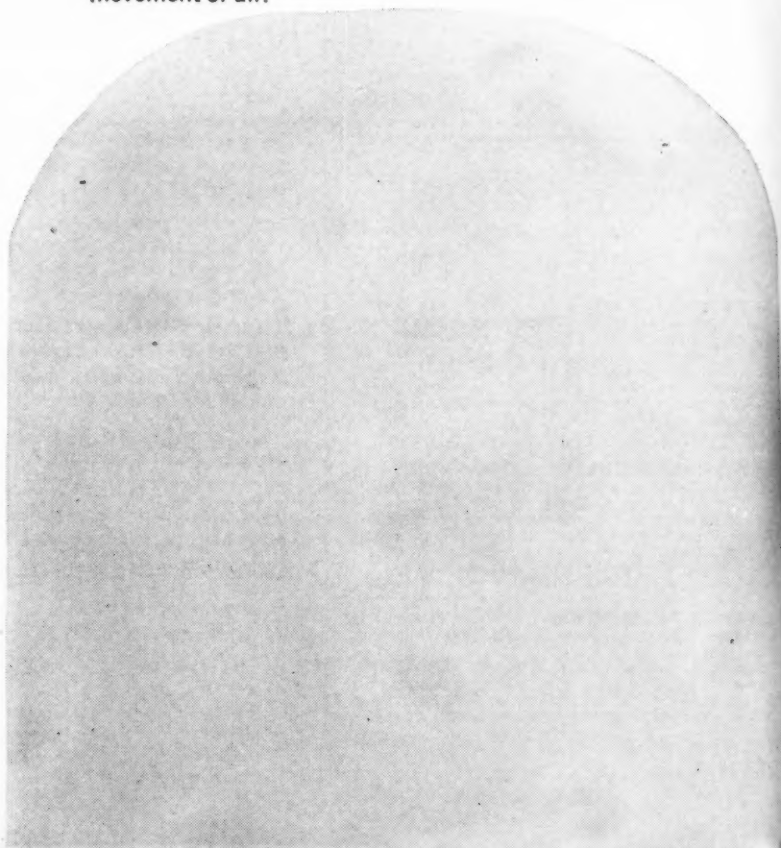
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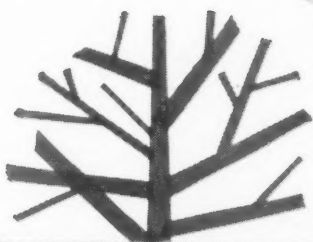
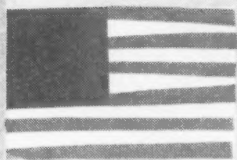


**air environment**

Air—its temperature, humidity, degree of cleanliness and rate of change—directly affects a student's learning environment. Westinghouse can help put the right air control products into any school building, to control temperature, cleanliness and the movement of air.





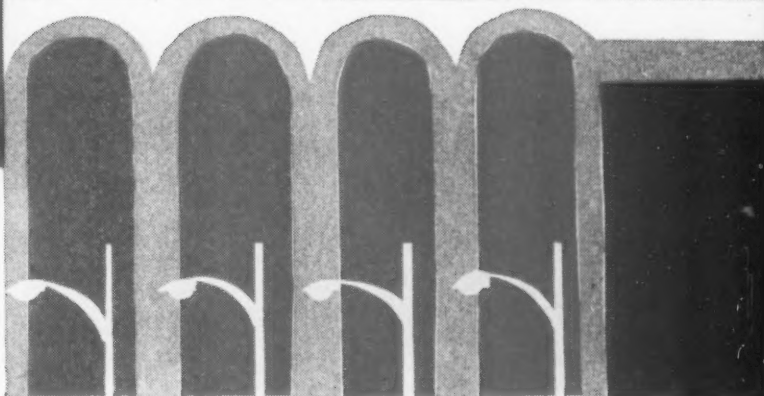
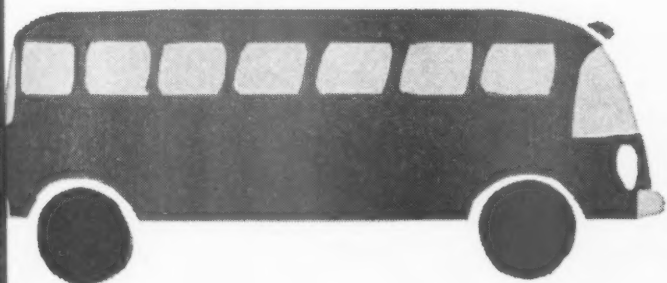


### student convenience

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### visual environment

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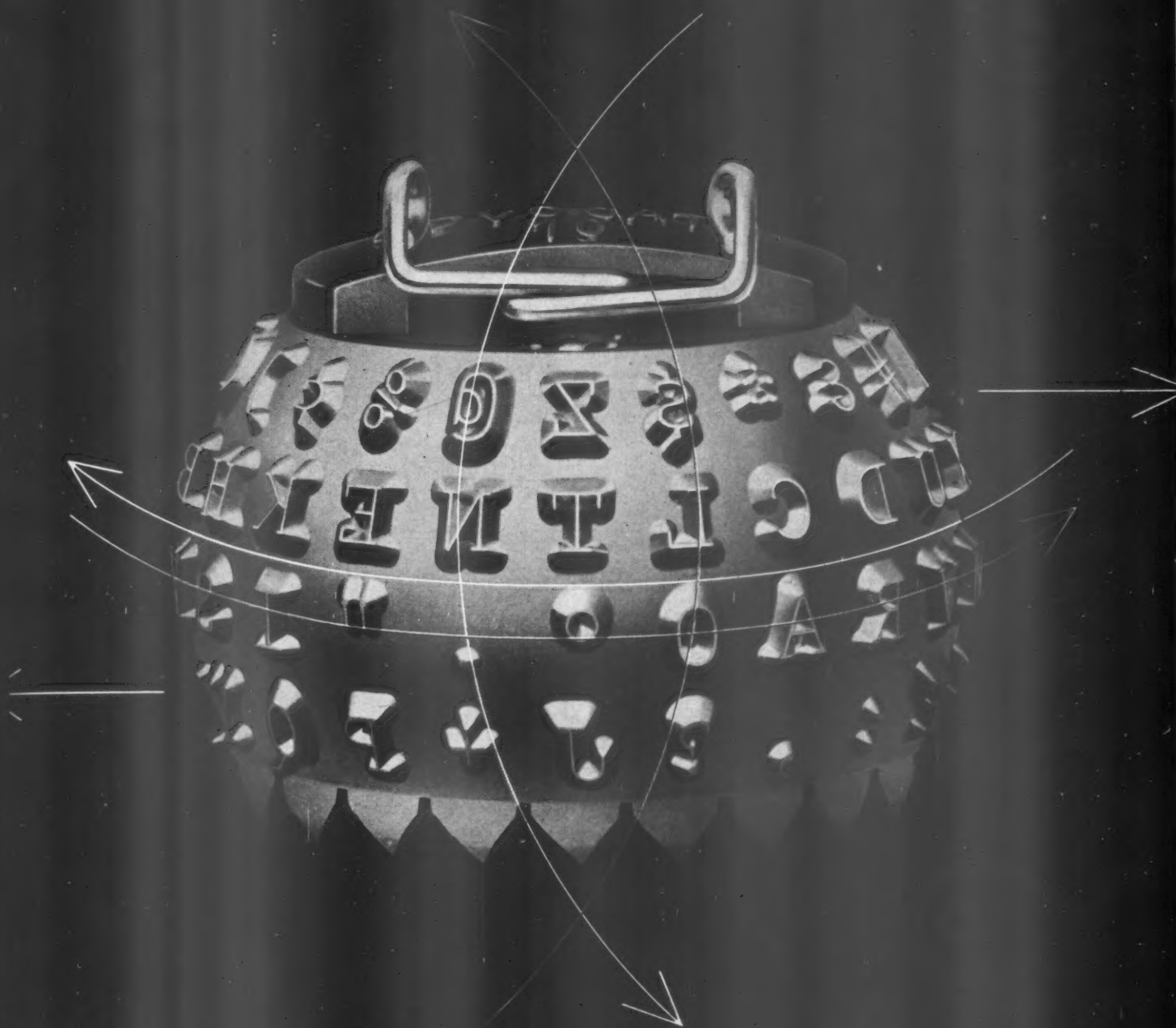
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#### A sampling of correspondence across the editor's desk

##### Dress right, teacher!

SIR: I was extremely interested to read the article "How to get your students to Dress Right!" (*SM*, Aug. '61). Dr. Manch made many excellent suggestions as to proper attire for both male and female students.

However, then I turned to page 42, which includes pictures of the school staff in Lawndale, Calif., and what appears but a picture of an art instructor wearing a sweater, skirt, and sneakers! I'm sure Dr. Manch would frown on this. I can remember back to my elementary school days when I had a teacher who apparently owned only two skirts and two sweaters, which she interchanged for the entire school year.

How about a short feature on what the well-dressed, or just the properly-dressed, teacher should wear?

BARBARA A. BYERS  
WASHINGTON, D.C.

##### Fire the superintendent

SIR: I feel that you are morally obligated to correct or to retract the prejudiced, misleading or erroneous statements printed under the title "Why, when and how to fire a superintendent." (*See SM*, Aug. '61.)

Because I doubt that the authors are qualified to discuss school boards objectively, or to give a board's-eye view of superintendents, I have prepared the attached 1,600 words "Comment on—Why, when and how to fire a superintendent," for your consideration.

MARION F. BYERS  
SCHOOL BOARD PRESIDENT  
PRINCETON, IND.

■ Excerpts from Mr. Byers' rebuttal  
appear on page 40 of this issue. ED.

##### Enlightening conclusions

SIR: The conclusions reached by Dr. Kennan and Dr. Engleman were enlightening. In fact, the sentiments of Dr. Kennan are basically the same opinions that I have had for many years.

Some years ago, prior to my becoming a member and before three other members of the present board, our superintendent was charged with a long "statement of charges." The board held a quasi-judicial hearing,

fired the superintendent, and the community went through the usual discord, bickering, and discontent as explained in your article.

The wounds created by the firing, the trial and resultant litigation and appeals have not been healed yet.

The foregoing was stated as information relative to some pertinent questions that I feel should be answered:

1. Dr. Engleman states, "I do not question that a superintendent should be fired if he is incompetent. I question the board's ability to judge that." If this is the case, my question would be: originally didn't the board have the ability to determine that this particular applicant was qualified for the position of superintendent?

2. Dr. Engleman states that the superintendent should take his case to the public to resolve his differences with the board if they cannot be resolved otherwise. My question is: by his answer, does Dr. Engleman want the superintendent to solve his conflict or create a greater conflict by technically going over the board's head? Where is the basic common sense in this move? The inference to me is, the board does not have the ability to judge the reasons causing the conflict, but the people in the community do—although the board works more closely with the superintendent than the rest of the community does.

3. On the question of board competency, "If the board feels that the superintendent is laggard in keeping up with advances in education, is this grounds for firing him?" Dr. Engleman stated he did not have a good answer to this question. Further on he states, "The important thing is the superintendent's professional position." This particular statement is, in my opinion, the entire basis of Dr. Engleman's position, one of professional ego. Does this "ego" place, or establish, the superintendent on a plane far above anyone else?

Is he better than a mason or bricklayer who does an excellent job, placing brick after brick, stone after stone, and finishes with a true, level, square wall or floor? Does Dr. Engleman feel that this person does not have pride and stature among his fellow workers, in his chosen field, although he is not a professional man?

4. On the question of finances and  
continued on page 15



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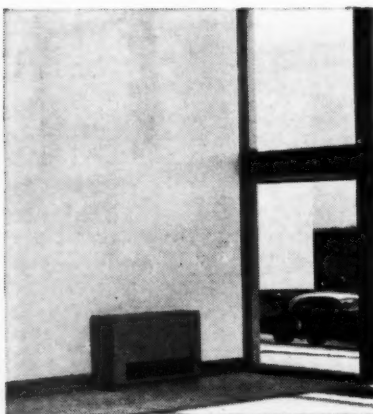
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Beautiful, new Bermudian Springs High School (above) near York, Pa. accommodates more than 650 students in 23 Chromalox-equipped classrooms like the one at right.

Spacious lobby, with large expanse of glass, is comfortably heated with Chromalox console unit heaters.



## It's Chromalox for comfort heating in Pennsylvania's first electrically heated high school

When the beautiful, new Bermudian Springs High School was built near York, Pa., another first was established for clean, economical electric heating.

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Electric heat eliminates the old-fashioned (and often troublesome) boiler rooms, an advantage to both architects and school administrators. There's

no soot, leaky pipes, water hammer or obnoxious odors to annoy the occupants.

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public relations: as a board member I feel this is of paramount importance and is one of the main functions of any board. The preparation and presentation of the budget is the board's responsibility, not the superintendent's. The superintendent helps decide the budget, by presenting to the board his needs to run the school system efficiently.

By the same token, if all the monies he requested are approved by the school board, and later by the community, he cannot use these monies without proper authorization. Do not forget that the board must approve any and all expenditures. Therefore, how can a board fire a superintendent for poor handling of finances? This, in my opinion, means a laxity in the board operations.

Public relations is everybody's responsibility. Through constant contact with the board, the superintendent knows what the feelings of the board are and should not publicize his adverse opinions without first discussing them with the board. Then, if no conclusion is reached, he should tell the board he intends to make public his feelings. Too often a board is taken completely by surprise by statements made by the administration, first reading them in a newspaper or via a local release.

Wouldn't Dr. Engleman agree with me on this?

A. M. WAYNE,  
PRESIDENT

RIVERDALE BOARD OF EDUCATION  
RIVERDALE, N.J.

### Vending machines

SIR: Your article "Trends in School Feeding" (*SM*, Aug. '61) was most enlightening and I am certain, fairly presented. You will forgive me if I cannot help but correct some of the apparently uninformed opinions expressed by Mr. Flambert. It is quite true that vending machines (for full meal service) until now have not been widely used in primary schools. One of the main reasons is that until about two or three years ago equipment and production facilities had not been perfected to the point where this was possible.

It is interesting to point out, however, that quite a bit of successful pioneering has been done in the last two years in parochial schools.

Admittedly the innovation of automatic full-line service in primary schools is just now at its beginning, but if your experts were really "looking ahead" as the title implies, Mr. Flambert's obvious dislike for vending machines could stand some further elaboration.

Specifically, on page 50 of your

report, Mr. Flambert allows himself some observations which are not based on the facts. Not only in schools but also in industrial and office locations automatic cafeterias, while indeed incorporating expensive equipment, usually make it possible to reduce the cost of food charged to the customer, and the initial cost of the equipment is *not*, in effect, passed on to the customer. What makes this seeming "feat" possible is the fact that most vending operating companies are now capable of serving a number of different vending cafeterias from a centrally operated commissary, thus reducing costs.

Mr. Flambert is, of course, entitled to his opinion that "the product they serve is pretty bad. Moreover it is expensive and it is not fast."

While there is a natural variance in quality and service between different vending companies (just as there is between public restaurants and school lunch programs) the whole idea of automatic vending restaurants in recent years is based on high quality products and excellent service.

WALTER W. REED  
DIRECTOR OF PUBLIC RELATIONS  
NATIONAL AUTOMATIC  
MERCHANDISING ASSOC.

*better look again . . .*



## ONLY SICO'S BY-65 HAS PUSHBUTTON-REMOVABLE BENCHES

Think folding bench-table seating is pretty much "six of one and half-dozen of another?" SICO can prove it isn't so! There *is* a big difference in seating, and if you are really serious about getting full dollar value, better take a long look at that table you're thinking of buying. Then remember these six (of many) *extra features* found in SICO'S BY-65—features which no other table in the world can match:

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**SM**

**WHERE TO GET HELP**

#### A guide to useful information

##### AUDIO-VISUAL

**Hundreds of titles free.** Here are two annual catalogs that tell you how and where to get educational films, filmstrips and slides, free. The films, covering a vast variety of subjects, are sponsored by industrial, government and philanthropic organizations.

"Educators Guide to Free Films" contains 4,339 titles; 683 of them brand new this year. "Educators Guide to Free Filmstrips" lists 626 titles, 125 of which are new for 1961.

Each listing is annotated and tells the date of release, film size, whether sound or silent, running time or the number of frames.

Both guides are cross-indexed by department, title and subject. A source and availability index gives you the name and address of the sponsoring agency, booking time required, and the terms and conditions of loan for each film.

**EDUCATORS GUIDE TO FREE FILMS, 1961.** *Educators Progress Service, Randolph, Wisc.* 636 pages. \$9.

**EDUCATORS GUIDE TO FREE FILMSTRIPS, 1961.** *Educators Progress Service, Randolph, Wisc.* 165 pages. \$6.

##### FOOD SERVICE

**Vending source book.** Here's a complete source book of the automatic vending machine industry.

This reference lists manufacturers of machines, vendible product suppliers, manufacturers of component parts and services, and which products can be vended.

**BLUE BOOK OF AUTOMATIC MERCHANDISING.** *National Automatic Merchandising Assn., 7 South Dearborn St., Chicago 3.* 214 pages. \$3.

##### BUILDING

**Teaching space.** "Teaching has ceased to be a lonely profession performed by one teacher in one room. . . . Teaching is now a team effort with one teacher doing the teaching and a staff of specialists, consultants, aides, assistants and clerks backing him up," says this colorful brochure, "Space for Teachers."

This team effort requires space: space to meet and work privately,

space to plan and prepare lessons, space to develop instructional material, and space to confer with others.

"Space for Teachers" illustrates this concept of planning for teachers' needs. Eight pages of easy-to-visualize architects' designs are included, showing the how-and-where of space planning.

**SPACE FOR TEACHERS.** *Educational Facilities Laboratories, Inc. Stanford University, Stanford, California.* 20 pages. 25 cents.

##### CURRICULUM

**Teaching the gifted.** A new book suggests what to teach the gifted child and how to plan for differing individual needs in a curriculum.

Subjects discussed are social studies, arithmetic, creative mathematics, science, creative writing, reading, foreign languages, and creative art, music and dramatics.

The book should be helpful to administrators and curriculum specialists in developing concepts and materials for the education of the gifted child.

**CURRICULUM PLANNING FOR THE GIFTED.** *Edited by Louis A. Fliegler. Prentice Hall, New Jersey.* 414 pages. \$9.

**Workable ideas.** This new book, the Fifteenth Yearbook of the John Dewey Society, maintains that the comprehensive school best meets the needs of the gifted child.

The book is a collection of 13 essays written by various educational authorities. It takes a look at programs for the gifted in the U.S. and Europe.

Three basic points are emphasized in the development of a program for the gifted.

The first is identification of the gifted child—a gifted child is not necessarily identified by his IQ score. "The gifted child is one who shows consistently remarkable performances in any worthwhile endeavor."

The second point is respect for individual differences—"The maximum development of the individual is our goal. Many show giftedness in only a single area of activity."

*continued on page 33*



# SPECIAL REPORT:

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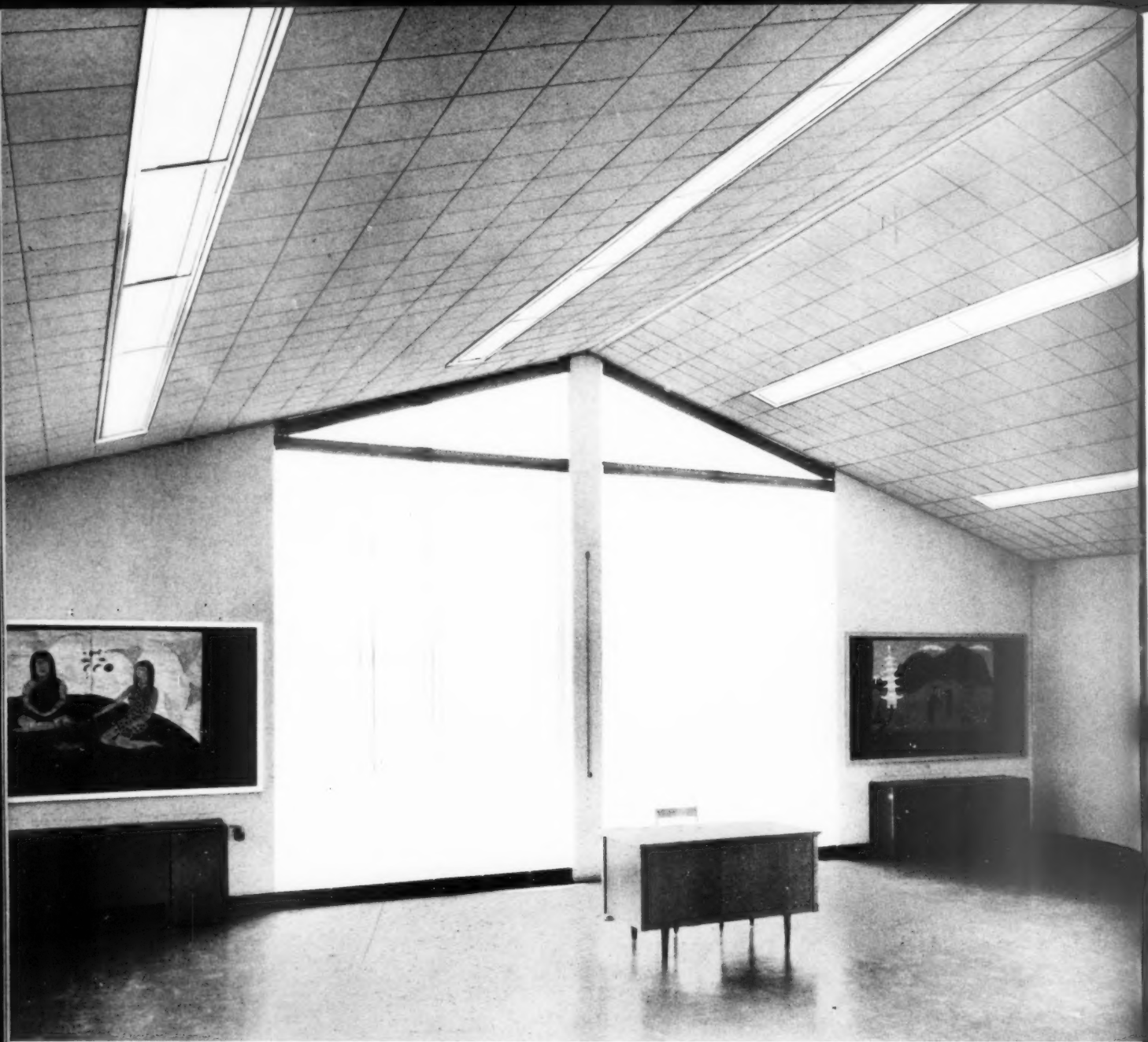
## ■ A DRAMATIC ACHIEVEMENT IN SCHOOL ■ CONSTRUCTION

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For the past 2½ years, a revolutionary new ceiling material, Armstrong Acoustical Fire Guard, has been making history in the school building field. This report shows a few of the thousands of installations of Fire Guard across the nation. The documented case histories that follow demonstrate the ability of Fire Guard ceilings to achieve far more than just rated fire protection. This material is also meeting many other important needs and solving vital problems in the building of the nation's schools.

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GEMENT





When the North Kirkwood, Missouri, school authorities decided to build an addition to their Design Award-winning Junior High School, they wanted an economical acoustical ceiling that would meet the local two-hour fire-code requirements. The final selection of Armstrong Acoustical Fire Guard tile in the Classic design was made over an alternate specification of mineral tile cemented to intermediate fire protection. By installing Fire Guard, they achieved all of their ceiling requirements and saved \$1,200 in ceiling construction costs, too. Time saved in installing the ceiling enabled them to open the addition in time for the new school year.

Superintendent of Schools: Mr. A. L. Crow  
 Architect: William B. Ittner, Inc., St. Louis, Mo.  
 General Contractor: Swan Construction Co., St. Louis  
 Acoustical Contractor: George F. Robertson Plastering Co., St. Louis



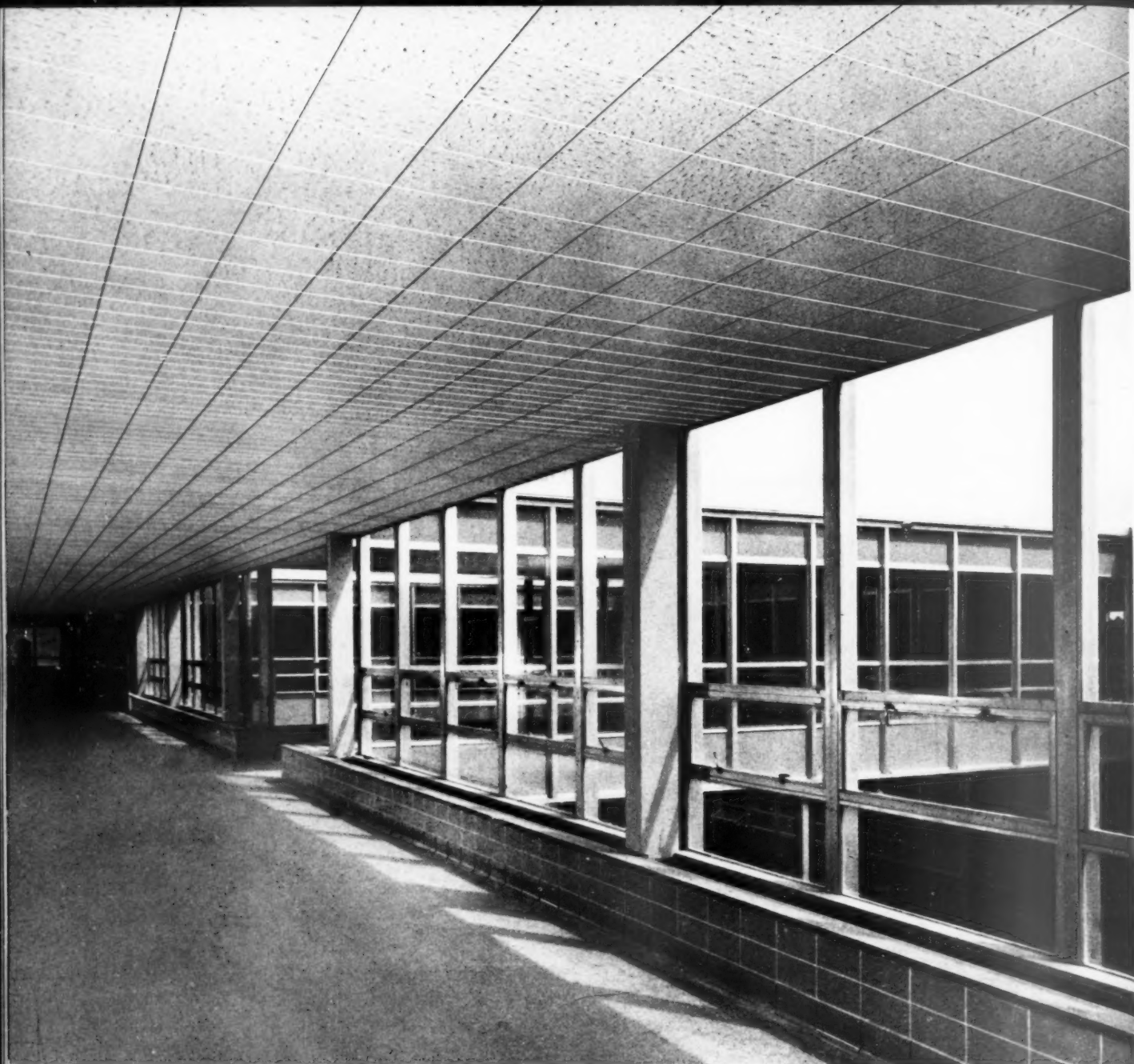
Superintendent of Schools: Dr. Stanley C. Campbell  
Architect: Baader, Young & Schultze, Philadelphia, Pa.  
General Contractor: McClain Construction Co., Inc., Philadelphia  
Acoustical Contractor: Berger Acoustical Co., Inc., Haverford, Pa.

## Missouri and Pennsylvania schools achieve economical ceiling construction

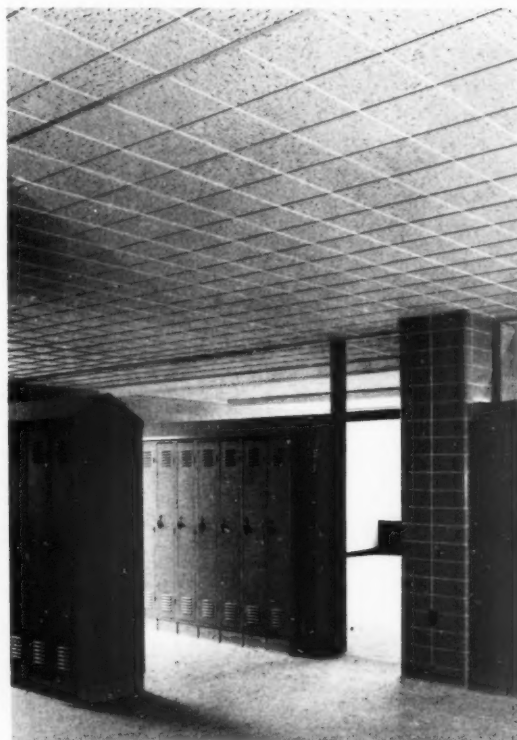


Indian Lane Jr. High School of the Rose Tree Union School District near Philadelphia saved \$3,000 by changing the ceiling specification to Armstrong Acoustical Fire Guard. Superintendent of Schools Dr. Stanley C. Campbell reports that school personnel had not been aware of this revolutionary fire-retardant acoustical material during the early planning stages. When they learned it would save thousands of dollars and four weeks' construction time, besides giving the building the required two-hour fire rating, their decision was automatic.





The most dramatic example of savings achieved by Fire Guard was reported by Valley Forge High School, Parma Heights, Ohio. Specifications called for Armstrong Acoustical Fire Guard or an alternative of acoustical tile cemented to intermediate fire protection. The firm which was awarded the contract submitted a bid showing that Acoustical Fire Guard would cost \$56,069 less than the alternate. This represented a saving of 53¢ per square foot, since 105,000 square feet of Acoustical Fire Guard ceilings were specified. In addition to this saving, Fire Guard in the Fissured design provides the school with attractive ceilings and excellent acoustical treatment, besides meeting a two-hour fire-code requirement.



Superintendent of Schools: Mr. Paul W. Briggs  
 Architect: Fulton, Dela Motte, Larson, Nassau & Associates, Cleveland, O.  
 General Contractor: H. J. Forepaugh and Son, Bedford, O.  
 Acoustical Contractor: The Gellin Company, Cleveland

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The new, million-dollar Robin Mickle Junior High School in Lincoln, Nebraska, realized substantial savings by installing Armstrong Acoustical Fire Guard. Authorities had considered an alternative ceiling involving a "wet" method of construction, which would have been more costly and time-consuming to install. Fire Guard helped meet all their requirements—a two-hour local-fire-code, acoustical treatment, a close September school-opening deadline—and saved \$4,000 in ceiling construction costs.



## Schools in Ohio and Nebraska save on construction costs

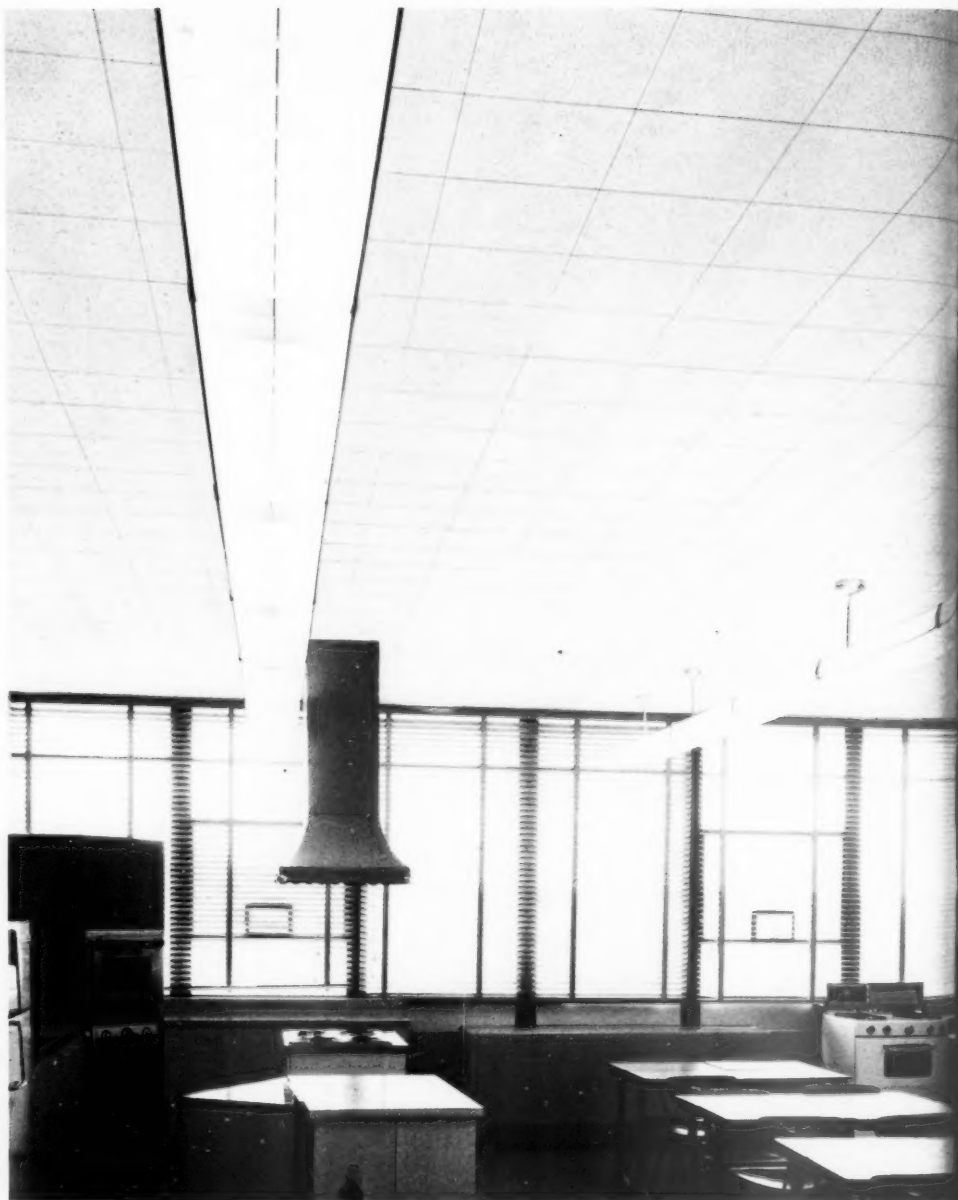


Superintendent of Schools: Mr. Steven N. Watkins  
 Director of Operations and Maintenance: Mr. Rudy J. Bauer  
 Architect: Unthank & Unthank, A.I.A., Lincoln, Nebraska  
 General Contractor: Westcott-Bowen Construction Co., Lincoln  
 Acoustical Contractor: The Eagle Co., Inc., Lincoln





New Westbrook Junior High School in Omaha, Nebraska, was actually ready to open ahead of schedule, in August, 1960. The reason—partly because of four weeks' construction time saved through fast installation of Armstrong Acoustical Fire Guard. The alternative ceiling considered would have involved "wet" installation, extensive cleanup, and a painted finish coat—all of which were avoided by using ceilings of Acoustical Fire Guard. Now all classrooms and corridors have attractive acoustical ceilings which meet the required two-hour local fire code.



Superintendent of Schools: Mr. H. V. Phelps  
 Architect: Leo A. Daly Co., Architects, Engineers, Planners, Omaha, Nebraska  
 General Contractor: Mainelli Construction Co., Omaha  
 Acoustical Contractor: Forman Brothers Co., Omaha



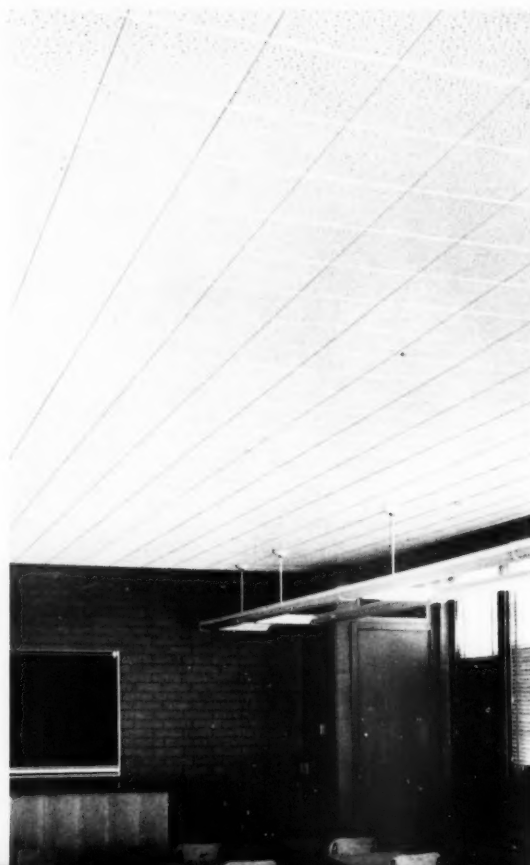
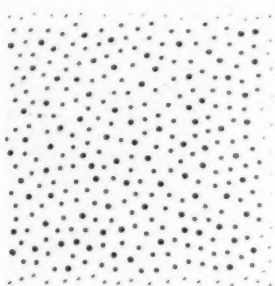
Superintendent of Schools: Mr. R. L. Pugh  
Architect: Raymond Fuson, A.I.A., John N. Peterson, A.I.A., Associates, New Bern, N. C.  
General Contractor: Dickerson, Inc., Monroe, N. C.  
Acoustical Contractor: Colonial Flooring & Acoustical Co., Durham, N. C.

## From Omaha and North Carolina: reports of reduced construction time

The West Havelock Elementary School in Havelock, North Carolina, was completed in April, 1961. An outstanding role in its fast construction was played by Armstrong Acoustical Fire Guard tile. Because Fire Guard is installed dry, it eliminated time-consuming "wet work"—which involves drying and cleanup periods. Also, Fire Guard permits other trades to continue working while ceiling installation is in progress. In all, 72,000 square feet of Acoustical Fire Guard were installed in 36 classrooms, administrative offices, teachers' lounge, a lunchroom and auditorium—in only 8 weeks. The ceiling met local two-hour fire codes and gave the architects greater freedom of building design by making additional fire doors in corridors unnecessary.





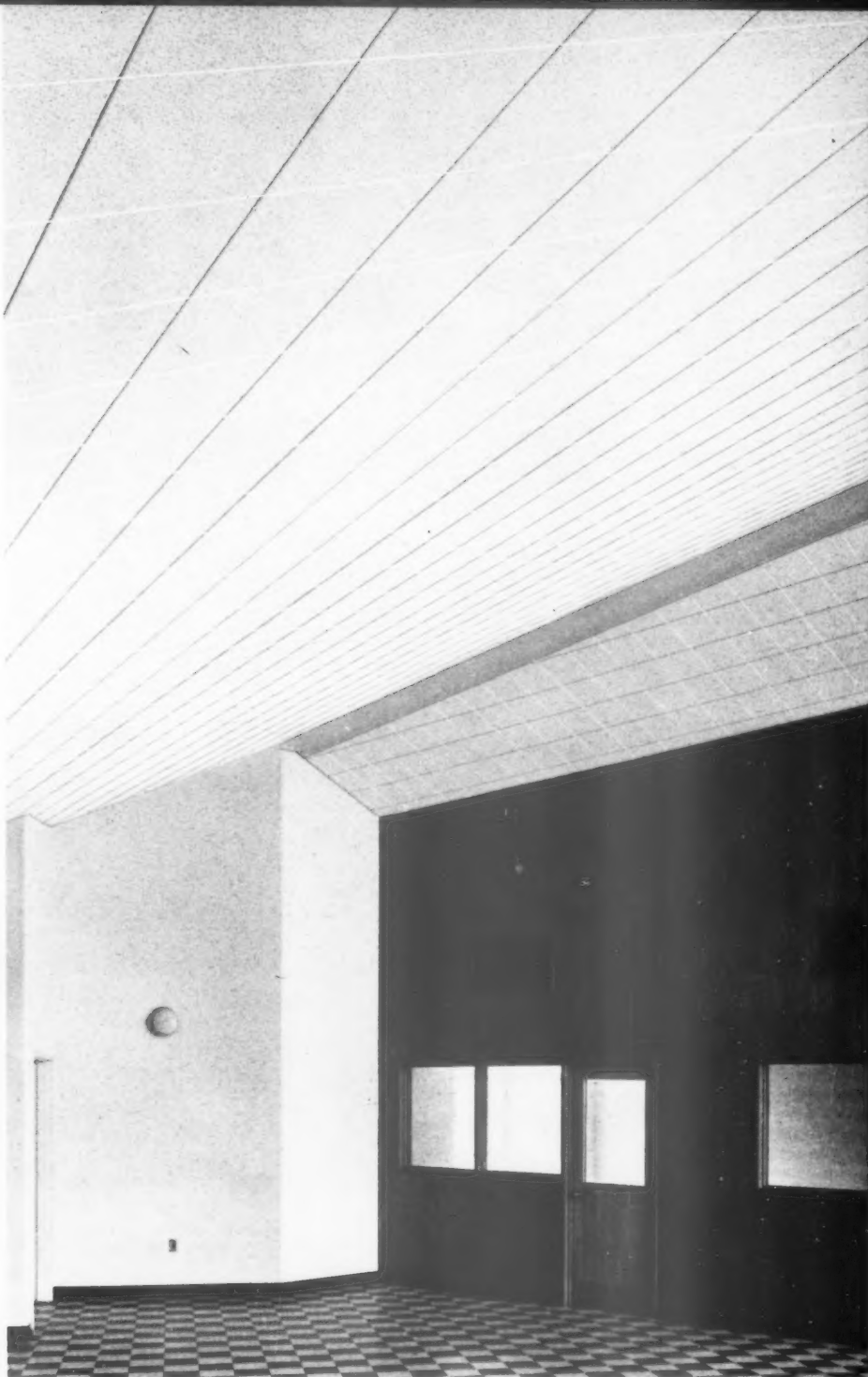


The Unified School District of Torrance, California, has a keen appreciation of the value of rated fire protection. For more fire-safe construction, a two-hour rated Armstrong Acoustical Fire Guard ceiling was installed in the fourth increment of South High School, just completed last April. Fire Guard not only prevents the spread of fire across the ceiling, but it also protects structural components from flames and heat for two hours. It offers both classroom-quieting acoustical treatment and rated fire protection—all in one installation.

Architect: Roy Donley & Associates, Los Angeles, California  
Acoustical Contractor: L. D. Reeder Company, Los Angeles



## California and New York schools decide on rated fire protection



Although local fire codes did not require a rated fire-retardant ceiling, the alert school board in Brentwood, Long Island, decided that two-hour rated fire protection was the minimum the students at Brentwood Jr. High School should have. School officials John J. Loeffler and Elmer Norman approved the specification of a two-hour rated Armstrong Acoustical Fire Guard ceiling in the Classic design. Also influencing their decision were Fire Guard's handsome appearance, ease of maintenance and durability. They got these qualities plus additional protection at no additional cost.

District Principal: Dr. Eugene G. Hoyt  
Superintendent of Building and Grounds: Mr. John J. Loeffler  
Clerk of the Works: Mr. Elmer Norman  
Architect: Lewis E. Jallade, Jr., N.Y.C.  
General Contractor: John Oechslein, Commack, N.Y.  
Acoustical Contractor: Donaldson Acoustics, Bethpage, N.Y.







## Utica, N.Y., school gets four-hour fire rating

The General Herkimer School in Utica, N. Y., got the ultimate in fire protection by installing a four-hour, time-design-rated ceiling of Armstrong Acoustical Fire Guard. Because the school wanted maximum fire protection, instead of simply complying with a local one-hour code, Fire Guard was given major consideration. A saving of ten weeks in ceiling installation time helped offset an unexpected construction delay, making it possible for this school to open on time.

Superintendent of Schools: Mr. Theodore F. Reusswig  
 Architect: Edmund J. Booth, A.I.A., Utica, N.Y.  
 General Contractor: John J. Harvey Co., Inc., Utica  
 Acoustical Contractor: Acme Acoustical Corp., East Syracuse, N. Y.







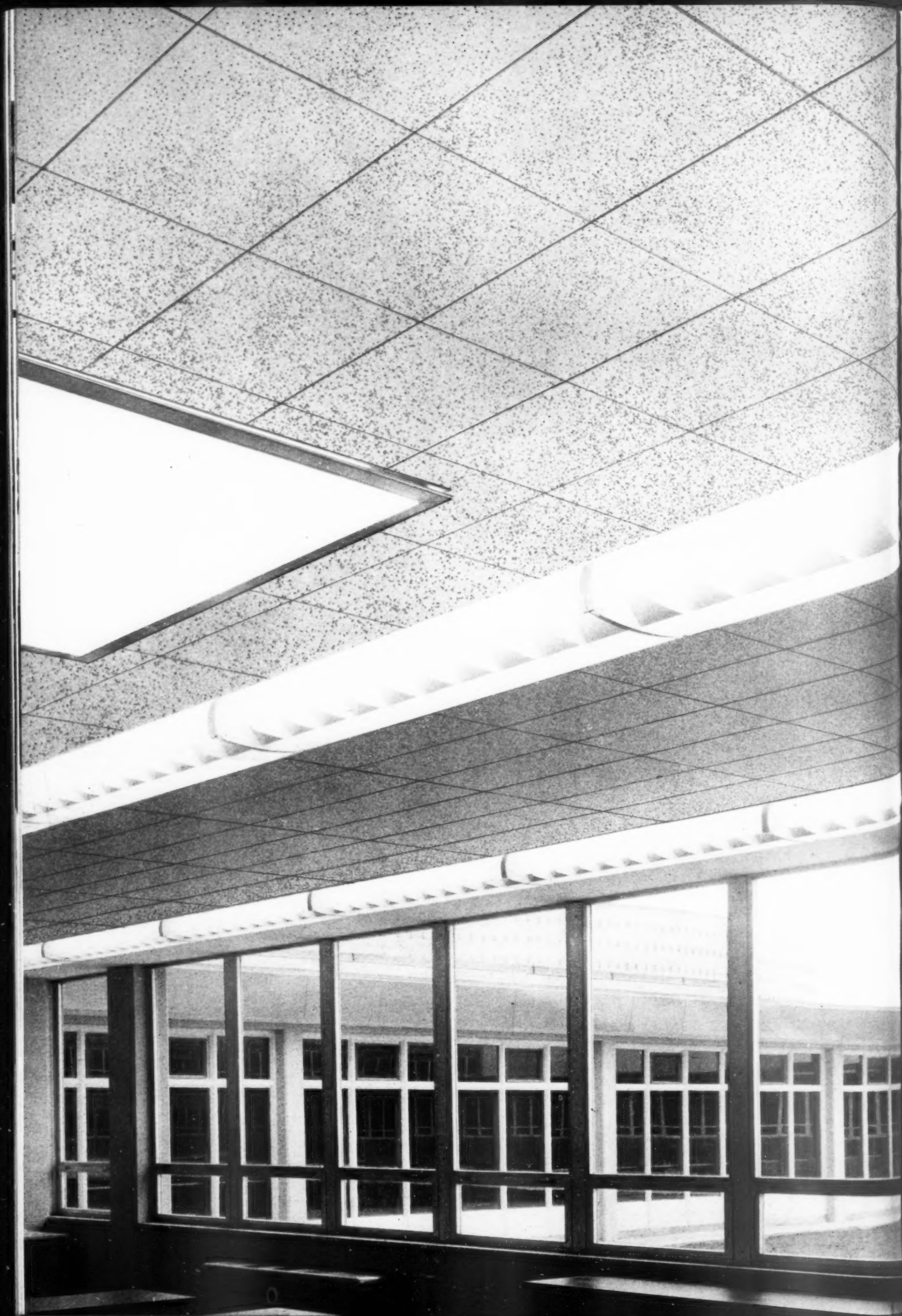
## Lower insurance rates for Chicago school

Lower fire insurance rates and better fire protection for their children motivated the Mundelein school board to select Armstrong Acoustical Fire Guard ceilings for the new two-million-dollar Mundelein High School in Chicago. School authorities report considerable savings will result from the lower insurance premiums made possible by Fire Guard. Meanwhile, the school has the advantage of a two-hour-rated acoustical ceiling in the handsome Full Random design.



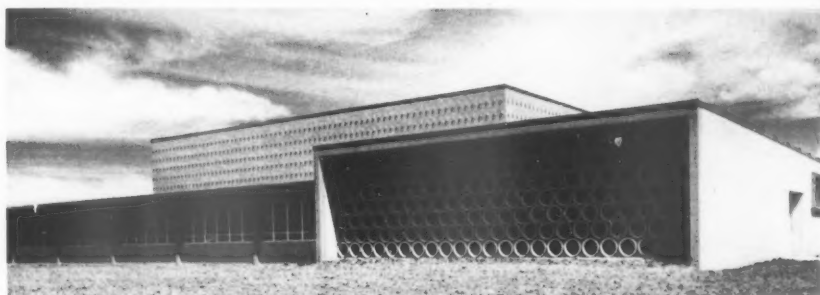
Principal: Mr. Loren Nicol  
 Architect: Berger, Kelley & Unteed, Champaign, Ill.  
 General Contractor: Coath & Goss, Inc., Chicago, Ill.  
 Acoustical Contractor: Airtite, Inc., Chicago



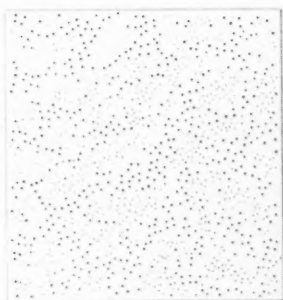




## Striking Cheyenne, Wyoming, school selects attractive ceiling design



New East High School in Cheyenne, Wyoming, is a two-million-dollar tribute to inspired architecture, a forward-looking school administration and imaginative use of modern materials. In keeping with the contemporary design of the school, the architects selected the Classic pattern of Armstrong Acoustical Fire Guard tile for its attractive modern appearance. In addition, Fire Guard provides necessary two-hour rated fire protection for the building's structural steel.



Superintendent of Schools: Mr. Sam R. Clark  
Architect: Kellogg & Kellogg & Sam C. Hutchings, Cheyenne, Wyo.  
General Contractor: Spiegelberg Lumber & Building Co., Laramie, Wyo.  
Acoustical Contractor: Acoustics & Specialties, Inc., Denver, Colo.

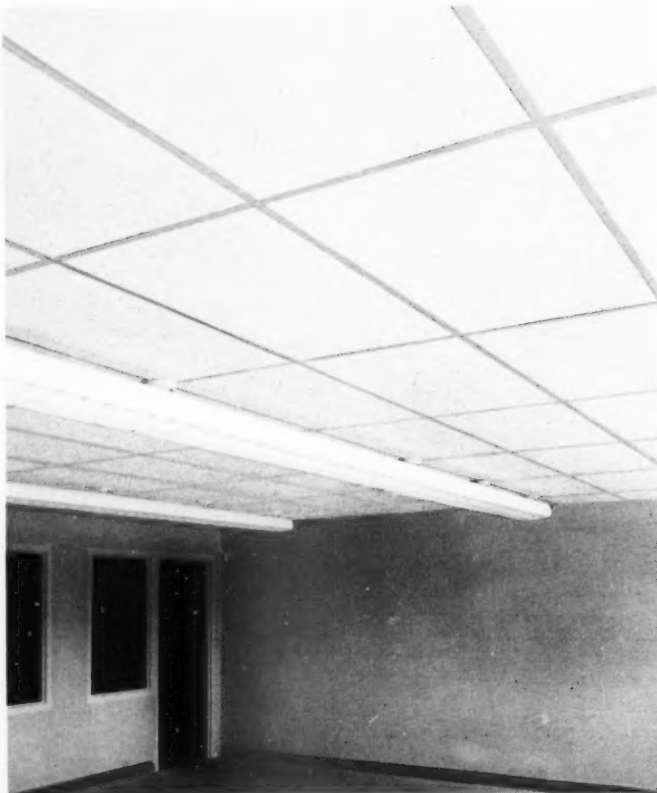


**ANDERSON SENIOR HIGH SCHOOL**  
 Superintendent of Schools: Mr. Herschel D. West  
 Architect: Garriott & Becker, Cincinnati, Ohio  
 General Contractor: Knowlton Construction Co., Bellefontaine, Ohio  
 Acoustical Contractor: R. B. Brunemann & Sons, Inc., Cincinnati



**VALLEY FORGE HIGH SCHOOL**  
 Superintendent of Schools: Mr. Paul W. Briggs  
 Architect: Fulton, Dela Motte, Larson, Nassau & Associates, Cleveland, O.  
 General Contractor: H. J. Forepaugh and Son, Bedford, Ohio  
 Acoustical Contractor: The Gellin Company, Cleveland

## Michigan, Ohio and Colorado schools achieve modern interior design



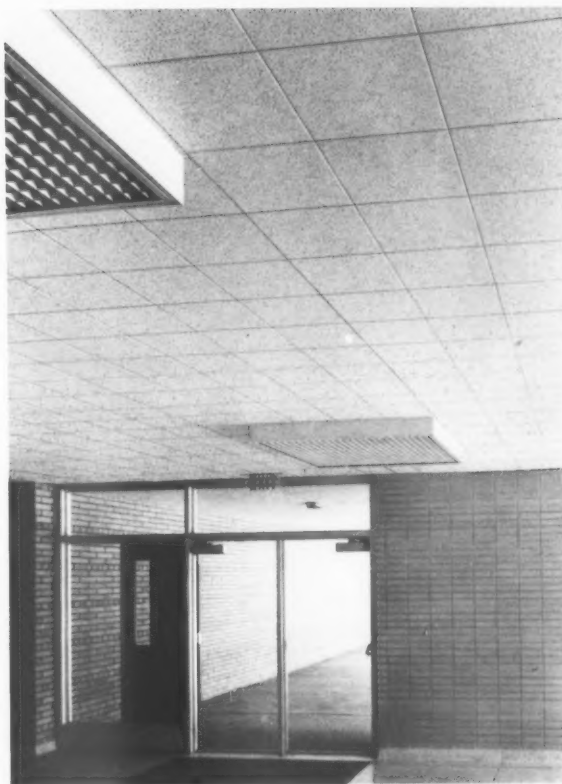
**COLORADO SCHOOL**  
 Architect: Robert F. Linstedt, Denver, Colo.  
 General Contractor: Carney Construction Company, Greeley, Colo.  
 Acoustical Contractor: Acoustics and Specialties, Inc., Denver



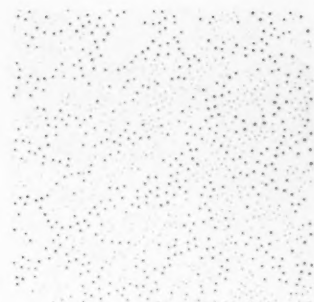


CAMBRIDGE JUNIOR HIGH SCHOOL  
 Superintendent of Schools: Dr. Edwin J. O'Leary  
 Architect: W. T. Anicka & Assoc., Ann Arbor, Mich.  
 General Contractor: Boyd-Lorenzo, Inc., Detroit, Mich.  
 Acoustical Contractor: Service Art Plastering, Co., Detroit

Variety in Armstrong Acoustical Fire Guard ceilings permits this modern material to blend with any kind of school architecture. Radcliff and Cambridge Junior High Schools, Garden City, Mich., selected the Classic pattern in 12" x 12" tile. Anderson Senior High School in Forestville, O., and a new Laboratory School and special educational facility in Colorado, have installed the Fire Guard lay-in system in the Classic design. Valley Forge High School, Parma Heights, O., used the distinctive Fissured pattern, with a beveled tile. This Fissured design is also available in a square-edge tile for a monolithic ceiling effect or in 24" x 24" and 24" x 48" lay-in units.



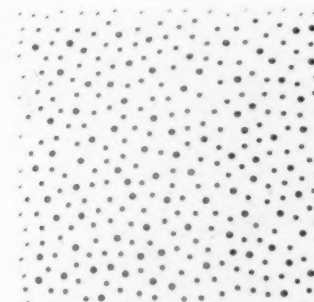
RADCLIFF JUNIOR HIGH SCHOOL  
 Superintendent of Schools: Dr. Edwin J. O'Leary  
 Architect: W. T. Anicka & Assoc., Ann Arbor, Mich.  
 General Contractor: Boyd-Lorenzo, Inc., Detroit, Mich.  
 Acoustical Contractor: Service Art Plastering, Co., Detroit



CLASSIC



FISSURED



FULL RANDOM

**Armstrong ACOUSTICAL CEILINGS**

*First in fire-retardant acoustical ceilings*



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Street, EDison 3-7741

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**CINCINNATI 37, OHIO,** 1057 Meta Drive,  
ELmhurst 1-3330

**CLEVELAND 14, OHIO,** 2975 Superior Ave-  
nue, MAin 1-7900

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CHerry 4-0543

**DETROIT 26, MICH.,** Free Press Building,  
321 Lafayette Ave., West, WOODward 3-8322

**KANSAS CITY 8, MO.,** 500 West 26th Street,  
VICTor 2-9154

**LOS ANGELES 22, CALIF.,** 5983 E. Smith-  
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Rockefeller Center, JUdson 2-3700

**PHILADELPHIA, PA.,** 301 City Line Avenue,  
Bala-Cynwyd, Pa., TENnyson 9-6640

**PITTSBURGH 22, PA.,** 24th St. & Allegheny  
River, ATLantic 1-7474

**ST. LOUIS 10, MO.,** 1919 Hampton Ave.,  
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**SAN FRANCISCO, CALIF.,** 1814 Ogden  
Drive, Burlingame, Calif., OXFord 7-1833

**SEATTLE 9, WASH.,** 221 Minor Ave., North,  
MAin 3-2772

**CANADA,** 6911 Decarie Boulevard, Mont-  
real 29, Quebec

School construction in America be-  
comes a more complex problem  
every year—and a graver responsi-  
bility. Excellence of design and the  
assurance of safety go hand in hand  
with the ever-present need for econ-  
omy. The schools shown in this re-  
port are evidence of the collaboration  
between educational authorities and  
architects—and are but a handful of  
the contemporary schools in which  
Armstrong Acoustical Fire Guard has  
contributed many important advan-  
tages, in addition to being an attrac-  
tive acoustical ceiling. Consult your  
architect for any information you re-  
quire about Armstrong Acoustical  
Fire Guard Ceilings. If you would like  
literature on the subject, just call any  
of the Armstrong Offices listed above,  
or write to Armstrong Cork Co., Spe-  
cial School Report, Lancaster, Pa.



The third point is experimentation —“Constant experimentation in all aspects of program making is necessary to achieve excellence.”

The book presents successful examples of curriculums for the gifted child. Ideas from Russian, German and English schools are discussed and six programs in operation in U.S. schools are also described.

PROGRAMS FOR THE GIFTED. Edited by Samuel Everett. Harper & Brothers, New York. 299 pages. \$5.50.

**Gifted elementary pupils.** Here's a government bulletin which shows how fourth, fifth and sixth grades may be organized to challenge the gifted child.

The bulletin is concerned basically with the educational environments and processes involved in educating the gifted child. How to identify the gifted child, and how to set up goals for an educational program, are covered. The value of this bulletin lies in showing how creativity may be encouraged and cultivated in elementary classroom situations.

EDUCATING THE MORE ABLE CHILDREN IN GRADES FOUR, FIVE AND SIX. By Gertrude M. Lewis. Available from Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. 84 pages. 35 cents.

## ADULT EDUCATION

**Educating the migrant.** In urban school districts, few problems are more important than educating new residents. They need training and re-training, says this pamphlet, to help them make the necessary vocational and community adjustments.

Some ways to solve this problem are presented here. Case history examples are cited. One, in the District of Columbia, tells how the school system's Adult Education Division planned a course of study in "Home and Family Living," for low-income families relocated within the District. There is also some discussion of adult education in Philadelphia, Indianapolis, New Haven, Minneapolis, and other cities.

EDUCATION OF THE ADULT MIGRANT. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C. 96 pages. 50 cents.

## TELEVISION

**Television as a literary form?** Here's an interesting book which proposes that commercial television can be a medium of cultural enlightenment, continued on page 36

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This is a typical experience of school superintendents and officials from all parts of the country after "MIRAC-O-LITE" had been installed in classrooms. "MIRAC-O-LITE" may be installed in existing outlets without re-wiring, resulting in half the cost — or relighting twice as many classrooms on the same appropriation. "MIRAC-O-LITE" provides comfortable "low-brightness," more even distribution . . . no shielding required . . . instant starts; flicker-free, hum-free, vibration-free light. Lamps unconditionally guaranteed for 3 years; normally last 10 years!

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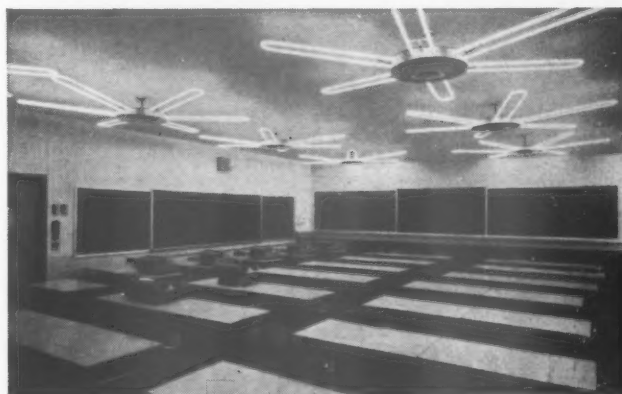
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N. Y. State School Boards Show  
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Onondaga County War Memorial Auditorium, Syracuse, N. Y.

**BOOTH NO. 119**  
Ohio School Boards Ass'n Convention  
Nov. 14, 15, 16,  
Veterans Memorial Auditorium, Columbus, Ohio

**BOOTH NO. 108**  
Illinois Ass'n of School Boards  
Nov. 19, 20, 21,  
Hotel Sherman, Chicago, Ill.



New West Deptford Junior, Senior High School, N. J.



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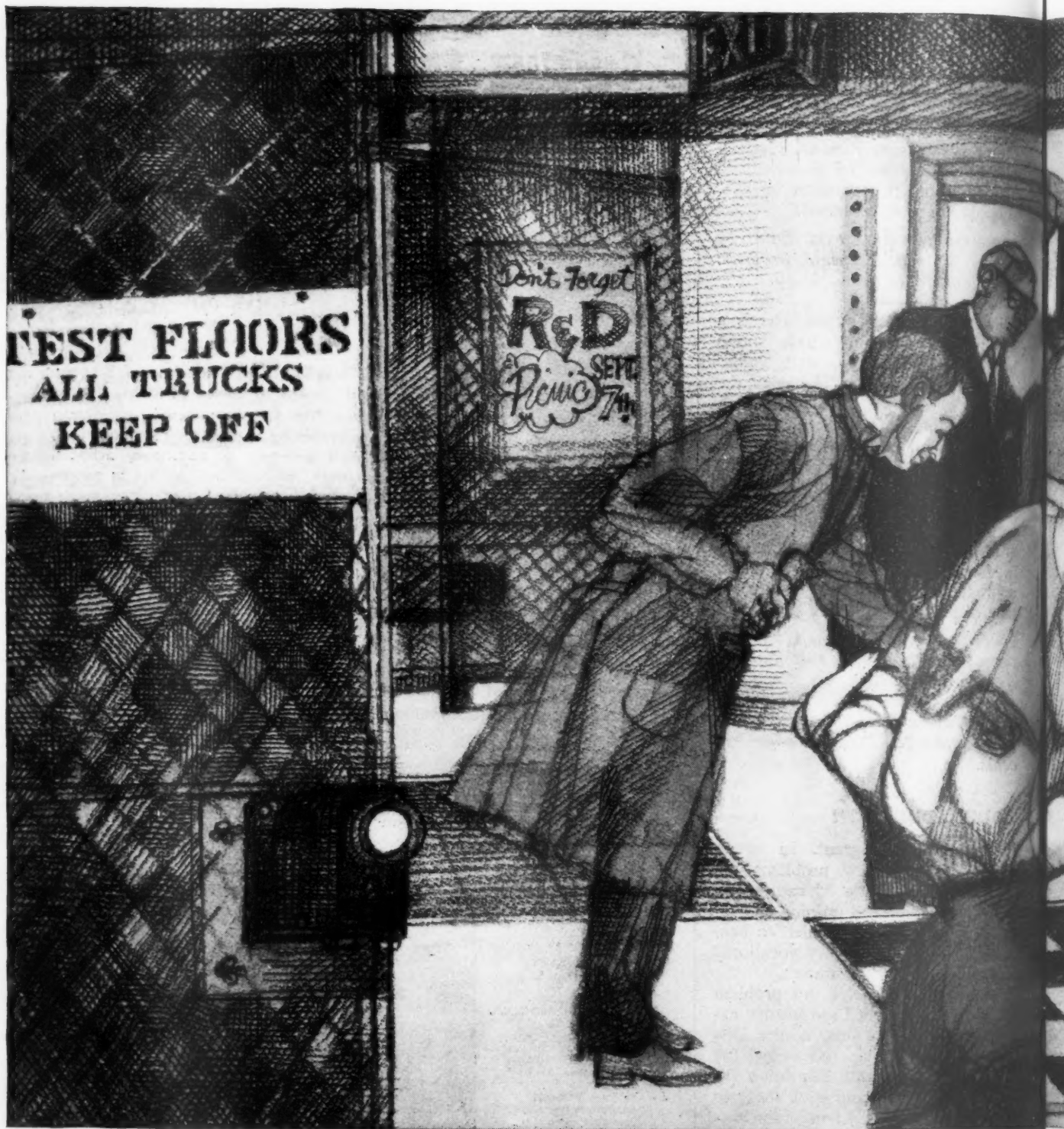
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## "GENTLEMEN OF THE JURY"

You are viewing a trial. The men you see here are about to reach a verdict. A verdict that means life or death to the defendant. ♦ The trial is taking place in an underground tunnel that connects the factory with the administration buildings at Johnson's Wax. Here, over fifty test panels are built into corridors used by hundreds of employees every day in the routine of their work. Electric-eye devices count the number of people who tramp across these panels daily —so it is an easy matter to compare products tested on these panels for durability, gloss, resistance to spotting, scuffing. ♦ Who is the defendant in this trial? Today it is a new floor finish just out of the laboratory. It is being judged by a jury





of experts—chemists, sales managers, floor care experts and management representatives. They are all trying to discover one important fact about this product. Does it live up to this company policy: "A new product will not be marketed unless it can do the job it is designed to do better than anything else available to the public." If it does not, then it will be sent back to the labs for more work. We test every single product we release like this to prove to ourselves that it is superior to anything else—and we are tougher in our demands than outsiders would ever be. That's why you always get products with a "Big Difference" from Johnson's. Recognize these names? STEP-AHEAD, SUPER-SHUR-TRED, FORWARD, WAX-STRIP, WAXTRA! These are tested products—quality products... Johnson's products.

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**LOOK AT YOUR MAINTENANCE PROBLEMS—AND SOLVE THEM**

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OCTOBER 1961

35



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PLAYERS	FOULS	MINUTES	SECONDS	FOULS	PLAYERS
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22 KENT	...	26	PERIOD 41	...	33 RODGERS
33 LOGAN	...	HOME	VISITOR	...	44 RILEY
44 JONES	...	FF-1S FOR BASKETBALL		...	55 BURNS
55 MEYERS	...	FOULS	PLAYER	FOULS	21 JOHNSON
12 WELLEN	...	2	1	3	12 ADAMS
14 SMITH	...				14 BALDWIN
15 KING	...				15 CLARK
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Every school wants a basketball scoreboard that builds spectator interest and gate receipts . . . and yours can have one, too, when you start with Fair-Play. Standardized and engineered to fit existing FF-1S installations, Fair-Play's "add-on" Player Name Panels, Foul Panels, Foul Indicator, and Next-Game Panel help you work up, season by season, to America's finest. All the while, you enjoy the year in and year out dependability that's made Fair-Play the world's largest scoreboard manufacturer. Write for catalogs: Football No. 76; Baseball No. 81; Basketball No. 28.

**FAIR-PLAY SCOREBOARD CO., Dept. SM, Box 359**

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(Circle number 717 for more information)

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**DIRT**

**BEHAVE...**

Keep it outside and prevent tracking throughout the building, thereby cutting cleaning and redecorating costs. Ezy-Rug Vinyl Link Matting will trap the dirt at the door.

**A LARGE PERCENTAGE OF ALL ACCIDENTS RESULT FROM SLIPPING)**

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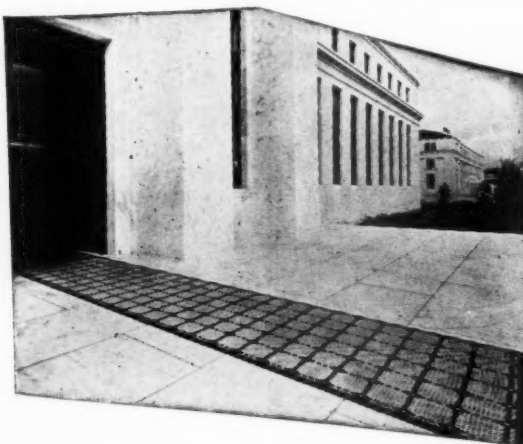
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"America's Largest Specialists in Floor Matting"

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A MAT FOR EVERY PURPOSE

(Circle number 702 for more information)



rather than a refuge from boredom.

The book does not discuss the pros and cons of television's value—or lack of value. It accepts TV as a national institution (88% of American homes have one or more TV sets).

What it does discuss is how to develop discrimination and taste in our youth for whom television has become a "magnetic source of information and a primary source of literary experience."

The book charges the schools with responsibility for teaching students how "to develop skills that will enable them to respond with satisfaction and intelligence" to the medium.

The book tells how to set up a TV appreciation course, a television workshop and other TV study projects. A possible course in television criticism is also covered.

Whether you believe that television is a literary form or an electronic tranquilizer, it's here to stay. This book tells you how to adjust to it, intelligently.

TELEVISION AND THE TEACHING OF ENGLISH by Neil Postman. Appleton-Century-Crofts, Inc., New York. 138 pages. \$1. Paperback.

### MAINTENANCE

**How to train custodians.** This manual, published by the University of Houston, is a somewhat unusual approach to custodial training activities. It has been written specifically as a self-contained in-service training program.

Included in the manuscript are various activities to be performed by the custodian as he learns. While the main body of the text deals with custodial problems in the care of buildings, each section has a "self-directed study activity" which requires the trainee to apply the information he has just learned. This is followed by tests, checklists and tables.

For example, there's a short section on dusting a classroom. The custodial trainee reads when he is to dust, the materials he will need, and the procedures—first the chalkboard trim, then window sills, etc. Right after this portion of the text he comes to a diagramed page resembling a classroom. By marking the page, he indicates how he would dust the room.

The manual, which can also be used as a reference work, was written by Dr. N. L. George, assistant superintendent for administrative services, Oklahoma City.

SCHOOL CUSTODIAN TRAINING MANUAL. Bureau of Education Research and Services, University of Houston, 3801 Cullen Blvd., Houston 4. 195 pages. \$2.00.





## Printed quality... far from printing cost

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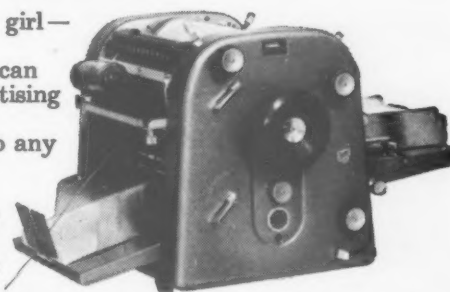
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Girls who work with this Table-Top offset machine say it's easier to operate than most office equipment. It's compact... only 21" x 24" x 35". Can easily be stored in a corner of your office. And it's fast... produces up to 7800 copies per hour.

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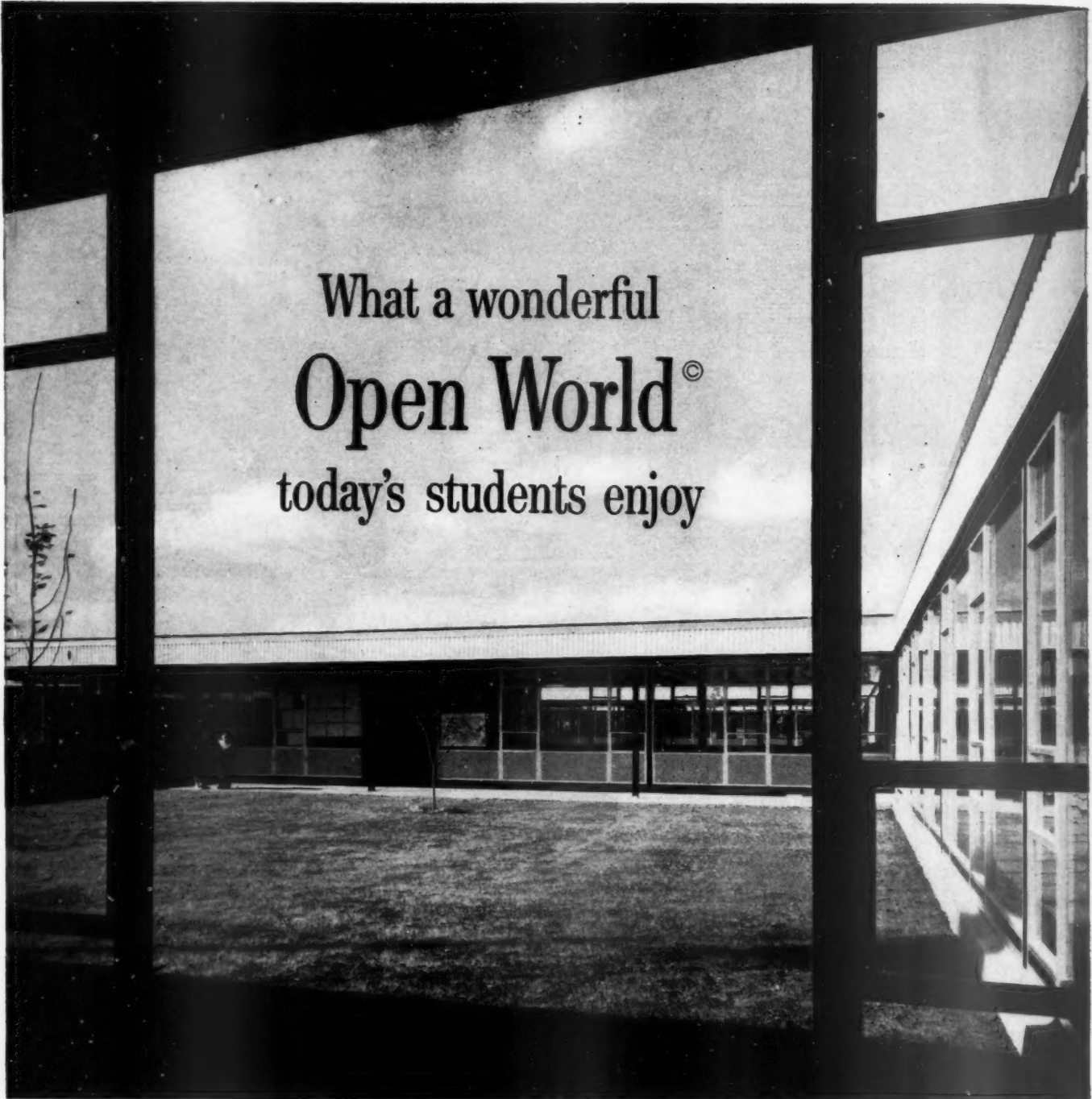
POSITION

COMPANY

CITY  ZONE  STATE

(Circle number 713 for more information)





What a wonderful  
**Open World<sup>®</sup>**  
 today's students enjoy



ABOVE: Greenfield Elementary School, Detroit, Mich. Eberle M. Smith Associates, Inc., architects and engineers. In this building: L·O·F clear glass in windows facing court; Heat Absorbing Plate Glass in exterior windows facing south, east and west; TUF-FLEX<sup>®</sup> heat-tempered plate glass in side lights at entrances; PARALLEL-O-PLATE<sup>®</sup> glass in transoms at entrances.



*Gone are the formidable, massive walls* that threatened to swallow up children. Now schools are inviting, exciting to enter. Gone are dark, dreary hallways. Perimeter corridors are like bright sun porches. Gone are classrooms that "close in" on students. Now walls of glass let nature become part of the classrooms . . . an "open world" environment where learning can be fun.

*How pleasant for students.* And how practical for taxpayers. Glass is a relatively low-cost construction material. And there's a kind of L·O·F glass for almost any need. Your architect can advise you which kind to use to solve special problems. Or ask your L·O·F Distributor or Dealer (listed under "Glass", in the Yellow Pages).

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## UNDERWOOD HAS ANSWERS TO MANY OF YOUR CLASSROOM PROBLEMS

...**TYPEWRITERS:** The new **TOUCH-MASTER FIVE** manual typewriter combines rugged construction with exceptional lightness of touch and confidence-building ease of operation. The new **SCRIPTOR** meets school needs for a full-sized, full-featured electric typewriter of good quality and dependability at moderate prices. The **RAPHAEL Electric** with easy-to-use variable letter spacing and polyethylene carbon ribbon, is ideal for administrative correspondence, bulletins and duplicating masters.

...**CALCULATORS:** The **DIVISUMMA 24** is a high-speed, high-capacity, 10-key desk calculator with a remarkable memory feature and printed tape record of all operations. Extreme versatility and ease of operation make it well-suited to administrative office needs as well as classroom instruction. (A new 30-lesson Divisumma Office Practice Course is now available for classroom instruction.) Other Underwood-Olivetti calculators range from adding machines to alpha-numeric accounting machines.

...**SUPPLIES:** A full range of high-quality carbon papers and typewriter ribbons is available through Underwood Representatives.

...**TEACHING AIDS:** The Underwood Education Division offers a number of typing teaching aids, prepared under the supervision of George Hossfield, ten-time national speed-typing champion, and classroom-oriented editors.

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DESIGNED FOR  
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COMBINATION**

Easy to store! Easy to fold and unfold!  
Easy to clean! Built for years of rugged  
service. Seats 16 comfortably.

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PORTABLE-FOLDING  
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Has the Exclusive "Piggy Back" Storage  
Feature. A Table that can change your  
multi-purpose room into a cafeteria, class-  
room or lecture hall in seconds. With the  
"Piggy-Back", your 12 standard folding  
chairs store right with the table.



**FOLDING  
CHORAL  
RISERS**

Easy folding! Compact storage! Designed  
for beauty and strength!

**DU-HONEY 512  
FOLD-AWAY  
ROLL-AWAY**



**TENNIS TABLE**

Features the "Hide-Away" Net. A quality  
champion built for championship play.  
Store it in a closet! Glide it into place!  
Open with "feather touch" . . . and you're  
ready to play. Regulation net stores inside  
table in tucked position and extends to  
official width when opened.



**PORTABLE  
PLATFORMS &  
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Sturdy, durable! Compact folding! Ideal  
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The fast, easy, safe way to  
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Plenty of leg room with the "Off-Center"  
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Lightweight, sturdy, folds compactly for  
easy stacking.

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FOLDING PRODUCTS Sales  
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**COMMENT ON**

# Why, when and how to fire a superintendent

By MARION F. BYERS

*School Board President  
Princeton, Ind.*

**Editor's note:** The following article  
was prepared by an Indiana school  
board president as a rebuttal to an  
article—"Why, when and how to fire  
a superintendent"—that appeared in  
the August issue of *School Manage-*  
*ment*.

In the August article, Dr. Finis Engleman, executive secretary of the American Association of School Administrators, and Dr. Richard Kennan, executive secretary of the National Commission for the Defense of Democracy Through Education, responded to questions framed by a *School Management* editor. Some of the issues raised during the tape-recorded sessions included: What is legitimate cause for firing a superintendent? When should a board decide whether or not to retain its superintendent? Should a superintendent resign? How can a school board judge a superintendent's competence? And, what recourse does a superintendent have, if he feels he has been unjustly fired?

■ ■ ■ "We've got to fight for our jobs!"

"I'm with you. Let's fight 'em!"

These and similar words were loudly proclaimed by groups of

superintendents of small school districts at a school administrators meeting in Indianapolis last year.

These groups of superintendents were organizing to fight the Reorganization of Indiana Schools as provided by recent statute. My inquiries lead me to believe that about half of the superintendents were fighting against the organization of the Indiana schools into larger administrative units. These articulate superintendents were pledging to fight for their jobs and for the continuation of the many four-year high schools with enrollments of 40, 50, 75, or 100 pupils.

This noisy group of alleged professional educators never mentioned fighting for better education, better school buildings, better teachers, better curriculum. Their jobs appeared to be their one and only concern.

It was gratifying indeed to talk with the other half, or should I say the better half, of the school supervisors at that meeting. I found them to be a group of dedicated professional men who were interested in the welfare of the schools. . . .

"Certainly, I may lose my job through school reorganization,"  
*continued on page 47*



# How this unit ventilator helped launch a new trend in school construction

Just four years ago Herman Nelson introduced the first unit ventilator for classroom air conditioning. It was this unit ventilator that first offered school planners a choice of future or immediate air conditioning at a reasonable cost.

Herman Nelson's unique "now or later" concept stirred interest in school air conditioning. Architects proved that air conditioned schools could often be built for less than conventional buildings. Construction savings *alone* absorbed the extra cost of air conditioning.

Classroom air conditioning has come of age. Hundreds of air conditioned schools have been built . . . hundreds more are on the drawing boards. Turn the page for a close look at a typical Herman Nelson "new trend" school.

Herman Nelson photo-reporter visits another air conditioned school



*HerNel-Cool III Unit Ventilator. Classic architectural styling. Efficient engineering design.*



THIRD IN A SERIES:

# "Air conditioning improves

Don C. Smith, Principal  
Del Norte Elementary School  
Roswell, New Mexico



Del Norte Elementary School, Roswell, New Mexico.  
Superintendent of Schools: H. F. Allred. Architect:  
Frank Standhardt, Roswell, N. M. Consulting Engi-  
neer: Dr. Marcello Giomi, P. E., Albuquerque, N. M.

"I do not consider air conditioning to be a fringe benefit for teachers alone, but as a valuable aid in our total educational process," says Don C. Smith, Principal, Del Norte Elementary School. "The most important advantage is that the added comfort of students and teachers contributes to their ability to concentrate and learn . . . air conditioned classrooms definitely improve student reaction."



# es student reaction"

## HERMAN NELSON UNIT VENTILATORS PROVIDE YEAR-ROUND THERMAL COMFORT FOR WINDOWLESS NEW MEXICO SCHOOL

A refreshing year-round thermal environment is maintained inside the unique windowless walls of Roswell, New Mexico's Del Norte Elementary school by a sensitive Herman Nelson unit ventilator system.

These Roswell classrooms are only a few of the more than 10,000 air conditioned classrooms all over the country. Herman Nelson started this trend toward school air conditioning with the HerNel-Cool Unit Ventilator—the first air conditioning unit ventilator. HerNel-Cool units combine all the time-tested advantages of unit ventilation

with low cost warm-weather refrigeration cooling. For example, when warm-weather temperatures drop to a comfortable level, HerNel-Cool units can use "free" outdoor air to control the thermal environment. This costs only about 1/30 as much as operating refrigeration equipment.

Take advantage of Herman Nelson experience, quality, and economy when planning your next new school project. Write for more information: Herman Nelson School Air Systems Division, American Air Filter Company, Inc., 215 Central Avenue, Louisville 8, Kentucky.



**Herman Nelson**   
SCHOOL AIR SYSTEMS DIVISION



"The air conditioned school . . . gives administrators, teachers, students, and the community, in general, a better learning environment at a first cost and operating costs smaller than a conventional school." States Consulting Engineer Dr. Marcello Giomi, Albuquerque, N. M.



Accurate, responsive individual room thermal control is maintained by flexible Herman Nelson ceiling-mounted unit ventilators. Here Roswell School Board Chairman Grady Southworth (left) and Superintendent of Schools H. F. Allred are shown outside the windowless Del Norte school—one of three air conditioned schools in their progressive school district.





New from RCA—

## Modern language teaching for all grades in every school!

RCA wheels in a new era in language teaching with the low-cost Mobile Language Laboratory. A completely self-contained unit, the RCA Mobile Laboratory is equipped to accommodate 10 students and instructor—in any classroom. Just roll it in, plug it in, and teach!

Simple? Yes, and versatile, too. The Mobile Lab is capable of performing all the functions of a regular Listen-Respond system: you can monitor and communicate with each student, record each student's performance. And it's all done with a single, never-so-simple-to-operate control panel. Student equipment consists of a combination headset, amplifier and microphone especially designed for low-level "close talking," so that the recitation of all ten students will not disturb other members of the class.

It's a remarkable unit that can be used at all

grade levels. It can serve as the main laboratory, as a starter unit for the school that wishes to experiment, or as a supplement to an existing laboratory. The RCA Mobile Laboratory is remarkably priced, too—less than \$1,000—for a complete 10-student laboratory!

Immediate demonstrations arranged without obligation. For details on this important addition to the RCA Educational Electronic Products line, write Radio Corporation of America, Meadow Lands, Pa.

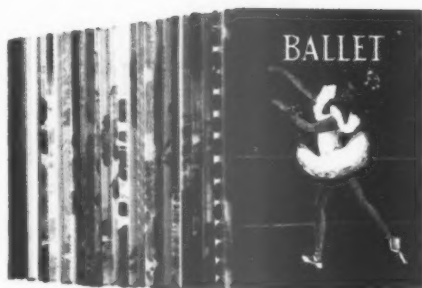


The Most Trusted Name in Electronics  
RADIO CORPORATION OF AMERICA





## When a book hits the road ...it has to stand hard knocks



There are 32 volumes in the Library Edition of Maxton Books for Young People—all colorfully bound in Du Pont vinyl "PX" cloth—published by Maxton Publishing Co., New York; distributed by Follett Publishing Co., Chicago.

That's why more and more publishers today are using new Du Pont vinyl "PX"\* cloth for bindings. It can take rough treatment. Resists abrasion. Hinges hold up. Corners are tough. And "PX" cloth gives a bright, sparkling reproduction of colors that make a book more interesting-looking. Invites reading. Du Pont vinyl "PX" cloth is 10 times more scrub-resistant\*\* than similar grades of pyroxylin materials. Meets official Minimum Standards and Specifications for Textbooks. Ask your book publisher to supply books bound with long-lasting "PX" cloth and cut down on your book-replacement costs. E. I. du Pont de Nemours & Co. (Inc.), Fabrics Trade Products, SM-110, Wilmington 98, Delaware.

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\*\*Scrub resistance is one of the important durability tests in comparative evaluation of book cloth.

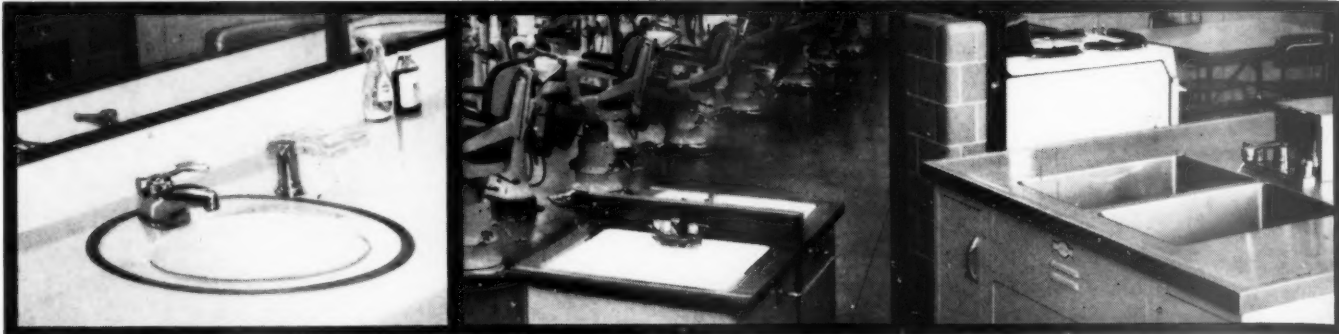
### VINYL "PX"® CLOTH



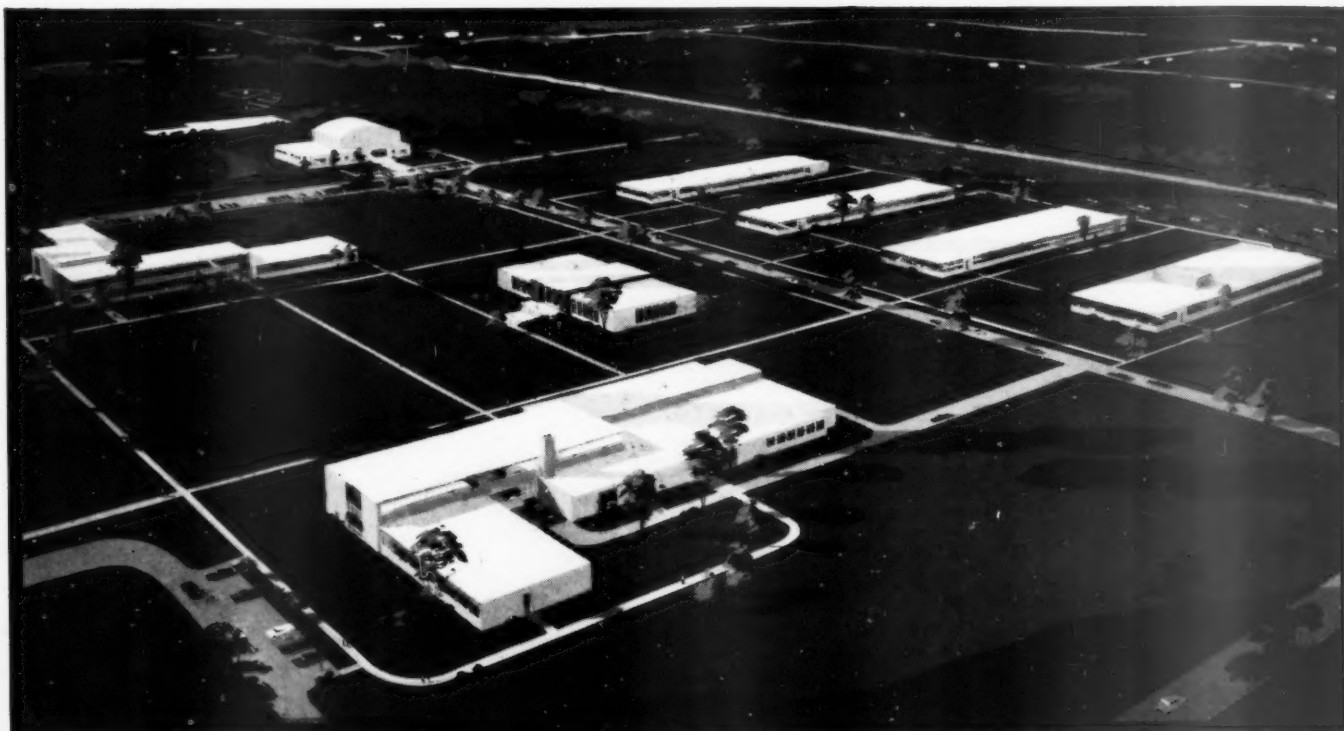
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Better Things for Better Living . . . through Chemistry





in washrooms... dental labs... kitchens...



## Crane fixtures serve 7,500 students in 8 modern buildings on Erie Co.Tech's new 120-acre campus

To meet industry's demand for technically-trained personnel, this impressive new Technical Institute was recently completed near Buffalo, N.Y. Its cost: \$8,000,000.

The campus serves 2,500 day and 5,000 evening and extension students in 8 buildings. Over 400 Crane fixtures were installed—lavatories, closets, urinals and

sinks. They were chosen for their utilitarian, yet attractive design and their reputation for durability.

The famous Crane flair for precision beyond ordinary standards assures years of satisfactory service. For instance, exclusive Crane Dial-ese controls largely eliminate the need for correcting dripping faucets. While Crane fixtures and fittings

are competitively priced, their real economy becomes strikingly apparent in long years of use in institutions like this modern Technical Institute.

For more information about Crane plumbing, heating or air conditioning equipment for schools and institutions, see your architect or contractor. Or write to Crane Co., Box 780, Johnstown, Penna.

AT THE  
HEART  
OF HOME AND  
INDUSTRY

# CRANE

VALVES AND PIPING  
ELECTRONIC CONTROLS  
PLUMBING  
HEATING • AIR CONDITIONING

(Circle number 712 for more information)



said one really professional educator. "But if I can't keep up with the progress of modern education and can't find a job elsewhere, then I deserve to be unemployed."

I believe that the professional integrity of Indiana school superintendents is about as high as that of the superintendents of any other state.

### The board's job

School boards generally are composed of highly competent citizens manifesting their interest in the community and the schools by accepting the thankless, low paying (or nonpaying) job of school board member. These self-sacrificing civic minded persons should be treated by the superintendent with the respect that an employee of high professional position would show the corporate officers or board of directors of his company.

A school board, like a corporate board of directors, has many duties and responsibilities. One of the most important responsibilities is maintaining high professional standards in the office of superintendent of schools.

The school superintendent is an employee of the school board and should be treated as an employee, not as a superior. But the school board should use every reasonable means to protect and support its administrative employee. The superintendent, like any other employee with high administrative responsibility, should be given unimpeded administrative authority.

With such great authority goes equally great responsibility and the school board must hold the superintendent fully responsible for the over-all educational program.

The professionally competent superintendent will take the initiative by keeping his school board informed of the educational deficiencies, personnel problems, curriculum difficulties and school needs. However, the high salaried misfit will resent any assistance offered by his employer-board and will be angered by the offer of help from anyone not annointed with a school administrator's license.

The school board has not only the right and privilege but also the duty of dismissing an incompetent superintendent.

One former superintendent (Dr. Engleman, ED) is quoted as saying, "A superintendent is better prepared than any board member to judge his own competency." Any business man that permits such impudence from an employee or permits an employee to claim he can judge his own competency better than his employer, would be out of business promptly. Any superintendent who condescends to his school board in the spirit of the above ex-superintendent should be looked upon with grave suspicion as a probable failure in his job.

**Why should a superintendent be fired?** A school superintendent generally should be dismissed for incompetency. Never should the school board fire him for such good reasons as dishonesty, public drunkenness, theft, playing party politics, etc., even when such acts are jeopardizing the educational program. The charge should be incompetency.

There are good reasons for such a charge: (1) If his activities do not reflect in the reduction of educational efficiency, there may be a question as to whether he should be fired. (2) The board may *know* of illegal or immoral acts that seriously affect the school but not be able to prove them "beyond a reasonable doubt."

If the superintendent is a high type professional man, he would probably resign when, for some unavoidable personal or local reason, he starts his school district toward inefficiency. However, if he is poorly adjusted socially (impudent, uncooperative and unable to command cooperation and respect) he would no doubt refuse to resign and would sue the board for damages when "personal" charges were made against him.

**When should a superintendent be fired?** The answer should be obvious: dismiss him on the last day that the law will permit. And the board should take great care that all the technical requirements are met. The laws are tricky and favor the superintendent—the school board must be on guard and look out for itself.

*continued on page 52*

**NEW**



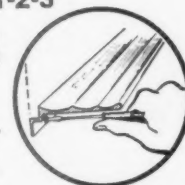
### COMPLETELY FRAMED IN LIFETIME STAINLESS STEEL

Bulky, costly frames eliminated. Stainless steel will not tarnish, scratch or corrode. Precision mitered corners. Easy maintenance, long life, and economy.

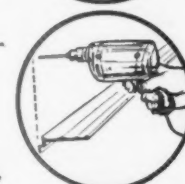
### AS EASY TO INSTALL AS 1-2-3

Only a drill, screw driver and level needed.

1 Just mount chalk-trough using screws or screw anchors.



2 Set Slim-Trim framed board in recess in trough.



3 Screw board to wall.



### MAXIMUM ECONOMY

Requires no particular skill or "muscle" to install. Two men can readily install even the largest units. No costly molding to buy or fit. No special backing or furring strips required. Pre-drilled screw holes in trough and frame save time, insure neatness and proper spacing. Frame and trough easy to keep clean.

### SHINY, SLEEK SLIM-TRIM FRAMES THESE WEBER COSTELLO BOARDS

Premium quality Sterling and Hyloplate, as well as Crownprest and Crownbest Chalkboards in green and black. Also Webtex Cork Bulletin Boards in tan or green in sizes up to 4'x12'.

**SEND FOR SLIM-TRIM DATA FILE,**



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## choose the Language Laboratory System that best fits your needs

Only TRW Magneticon offers a choice of five different language laboratory systems—direct or remote...tape, cartridge or disc. It is one of the big reasons there are more Magneticon language laboratories in use today than any other.

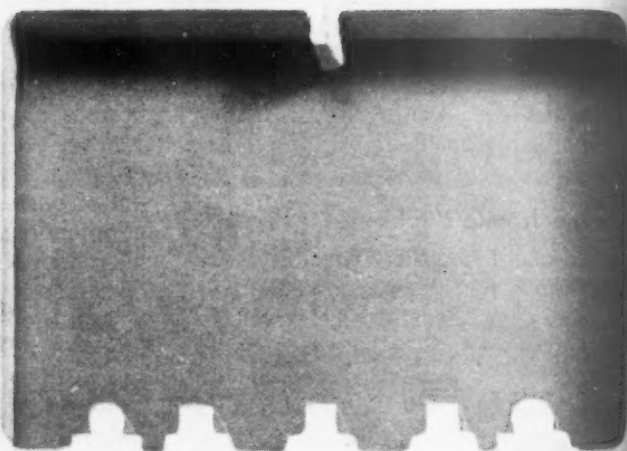
Each of these is a complete system capable of the highest quality Programmed Instruction through electronics.

Your local TRW Magneticon representative will be happy to analyze *your* school's needs and recommend which system fits best. Just off the press! New TRW Magneticon "100" brochure. Write for your copy today. For additional details or catalog sheets on any TRW instructional equipment, write: Educational Electronics Division, Thompson Ramo Wooldridge Inc., Englewood Cliffs, N. J.



***Thompson Ramo Wooldridge Inc.***

*Educational Electronics Division  
Englewood Cliffs, New Jersey*



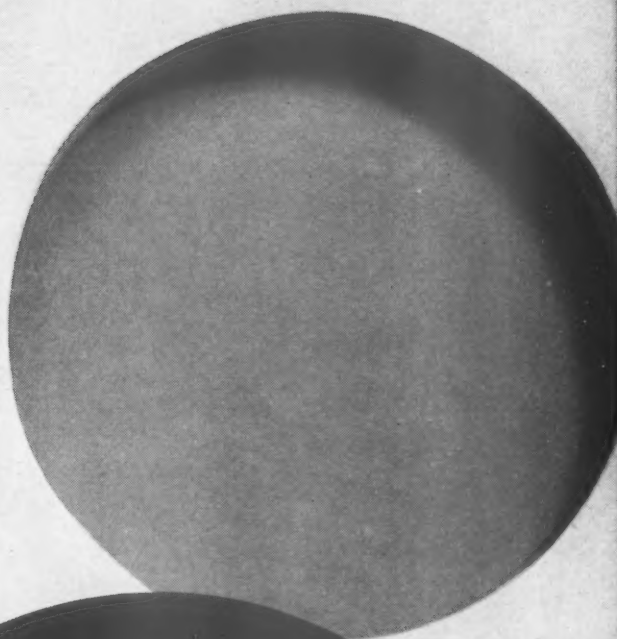
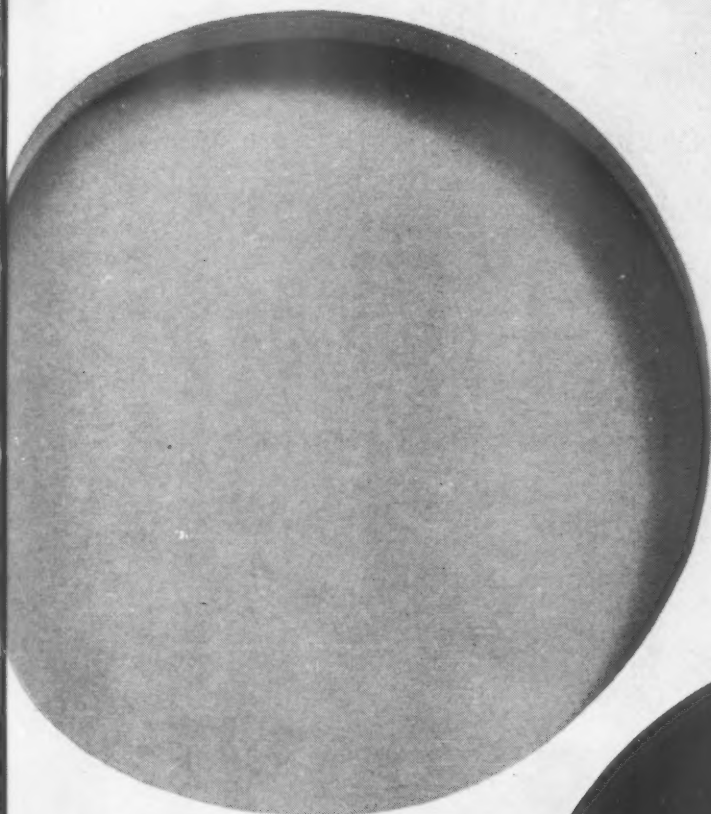
TWO-CHANNEL TAPE

### **For fifteen years...**

Magneticon and the language laboratory grew up together. Ten years before there was a National Defense Education Act, Magneticon language laboratory equipment was being installed in this country and overseas; many of these installations are still serving students and teachers today.

All three language systems... the two-channel





TWO-CHANNEL TAPE CARTRIDGE



MAGNETIC DISC

tape recorder, the magnetic disc, and the two-channel tape cartridge . . . were first introduced by Magneticon to the language teaching field.

As far back as 1949, Magneticon pioneered the concept of Programmed Instruction to the educational field by developing the first two-channel tape recorder for language teaching. Shortly thereafter, the self-tracking magnetic disc was intro-

duced, a system so simple to operate that it requires no instructions.

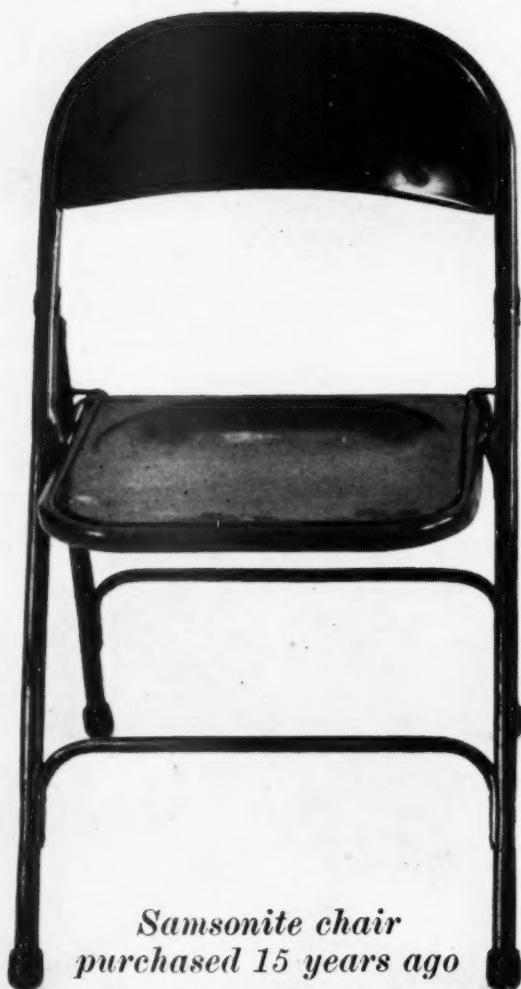
And now, the all-new TRW Magneticon two-channel tape cartridge completely eliminates tape threading, breakage, and spillage.

Because TRW Magneticon offers *all* types of language laboratory systems, you may choose a custom designed system to fit your teaching needs.

(Circle number 766 for more information)



## Samsonite CHAIR BUYER'S GUIDE



*Samsonite chair  
purchased 15 years ago*



*Samsonite chair  
just off 1961 assembly line*

### HOW LONG SHOULD A FOLDING CHAIR LAST?

The best answer we know is the photo above. The folding chair on the left was one of the *first* ever made by Samsonite—purchased in 1946 by American Legion Post 190, Detroit, Michigan.

During these 15 years, this folding chair (along with 299 others purchased from Samsonite) has been repeatedly folded, unfolded, sat on, even stepped on, during countless Post meetings, dinners, entertainments, etc. The chair is *still* used! Still sturdy! Still good looking! Still

comfortable! What is Samsonite's big secret?

- electrically welded tubular steel construction
- arched steel cross braces fore and aft
- *Bonderizing* for rust resistance

These super-strong chairs are engineered for *years* of care-free service. How many years? Ask American Legion Post 190. Although one—*just one*—of their original 300 chairs required a minor adjustment, they haven't had to replace a Samsonite chair yet.



For church, school, club, other group seating information, see your Yellow Pages or write: Shwayder Bros., Institutional Seating Division, Dept. SM-101, Detroit 29, Michigan.

# Samsonite

## FOLDING CHAIRS

(Circle number 747 for more information)



Cheap purchase  
is money lost.



[Old Japanese Proverb]



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That's why it pays to equip your classrooms with the best—Royal, schools' No. 1 typewriter.

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learning...instead of waiting for ailing typewriters to be repaired.

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(Circle number 746 for more information)

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**DO NOT READ THIS UNTIL YOU READ PAGE 97**  
Your answer on page 97 was: "quotients."

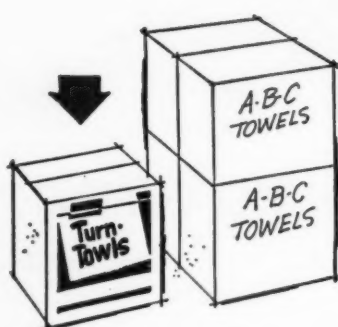
A "quotient" is the number resulting from a division. For example, in the division

$$\begin{array}{r} 6 \\ 3 \overline{)18} \end{array}; \text{ that is, } \frac{18}{3} = 6$$

the number 6 would be called the quotient. But our question concerned multiplication, not division. Return to page 97 and try again.

## MOSINEE TURN-TOWLS

*produce hidden cost savings*

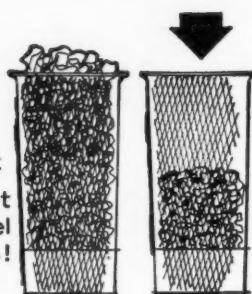


### Less Storage Space

One case of Turn-Towels goes as far as four cases of ordinary towels!

### Less Maintenance Cost

Turn-Towl cabinet control cuts towel consumption 50%!



Write for the name of your nearest distributor.



All superintendents spend huge sums of public money. The great educators with high professional ideals conserve taxpayers' funds. The incompetent educator has been known to build up friendships and "protection" by repeated purchases from favored vendors. The board should remember that such a superintendent has great power, unprecedented in other professions and businesses, and as soon as he is notified of his dismissal he may start a campaign to discredit a brave board of education. He may use the favored vendors and uninformed teachers to bolster his fight against his fully justified dismissal.

Occasionally, it seems, an incompetent superintendent has actually succeeded in buying or coercing his subordinates to support his campaign of hate against his employer-board. (Dr. Kennan referred to an incident where the school faculty resigned en masse. ED) In such cases all threatened resignations should be accepted in writing at once because no teacher or other employee should be retained if he is unhappy in his job or is insubordinate to his board of education.

The competent superintendent, the educator in whom the board has confidence, should be advised of his impending dismissal as soon as reasonable. However, the board should remember the great power and authority of its superintendent, and should give early advice only in unusual cases. A good man who, for some unique reason, is not successful in his present job, can easily find another one. But the incompetent employee may be a desperate fighter.

### How to fire a superintendent?

Employ an attorney because the board will find that the superintendent has the law on his side. The lobbies for school personnel are historically strong, but I have never heard of the school board lobby! (Officers of the National School Boards Association, please take notice. ED)

When the incompetent superintendent has been dismissed, the difficult problem is solved. Then the school board merely has the task of hiring a competent replacement.

**End**



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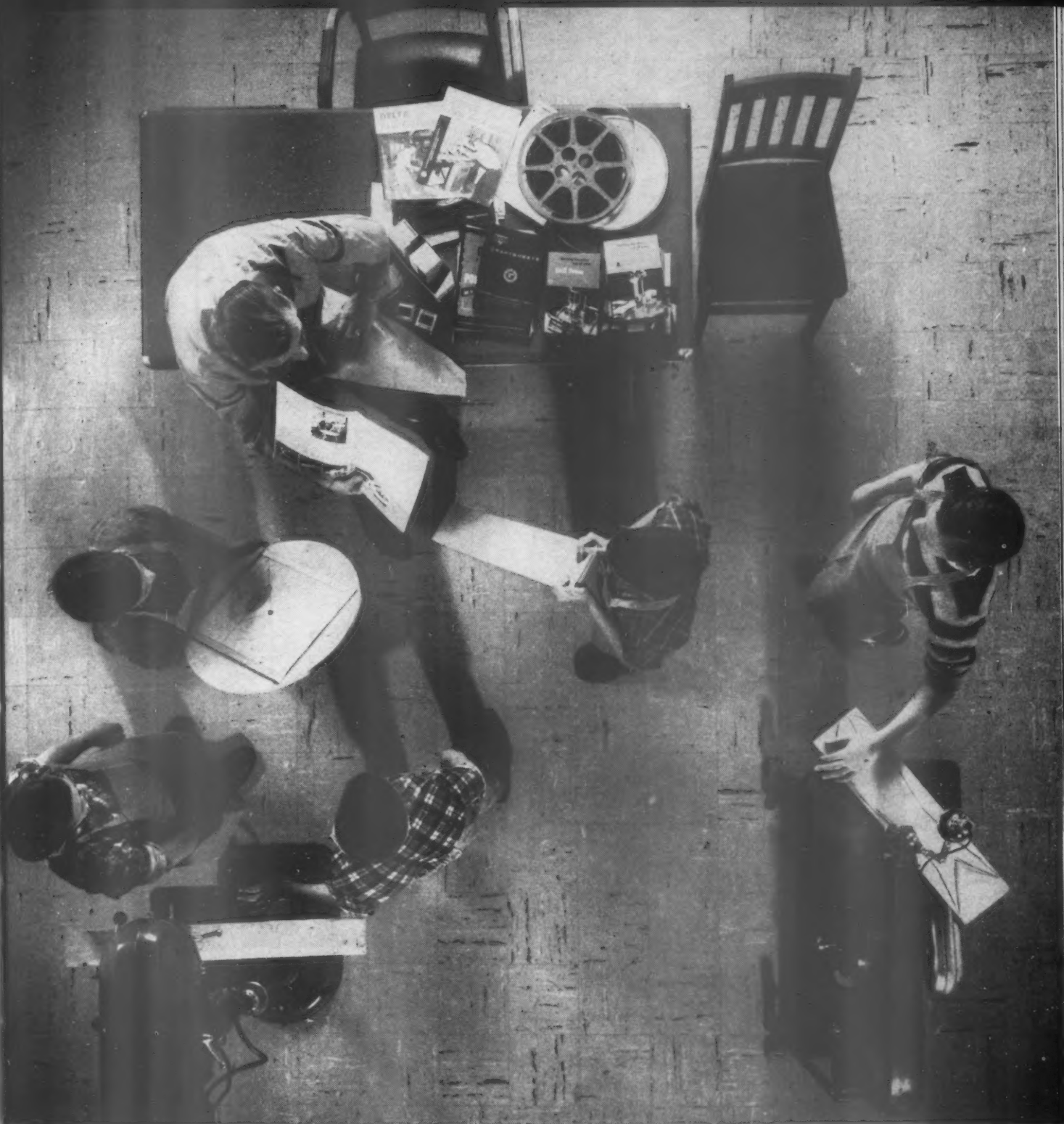
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AGEMENT



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Write for FREE list of practical teaching aids available to you: Rockwell Manufacturing Company, Delta Power Tool Division, 416K N. Lexington Ave., Pittsburgh 8, Pennsylvania

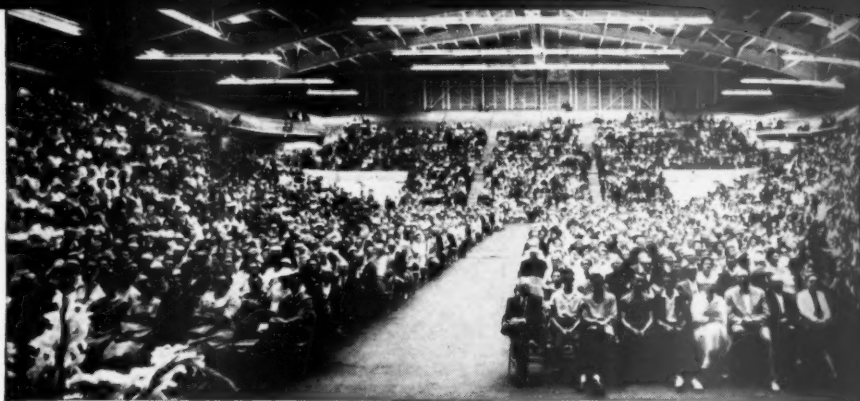


(Circle number 745 for more information)



ANDERSON HIGH SCHOOL  
ANDERSON, INDIANA

Architect: Arthur B. Henning,  
Anderson, Ind.



**SEATS OVER 8000 PEOPLE** *when open.....*  
*87% of seating area recovered when closed!*



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This Medart installation occupies nearly 22,000 square feet of floor space when opened and seats 8100 people! When closed, 19,000 square feet are restored for normal daily use.

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Compare the extra safety, durability, lower upkeep, and easier operation of "the industry's best buy" with any other retractable gym seat. Ask for check chart and catalog.



Medart Telescopic Gym Seats are available with 10½" or 11½" row rise and 22" or 24" row spacing.



See "The Man from Medart" or Write  
**Medart Products, Inc.**

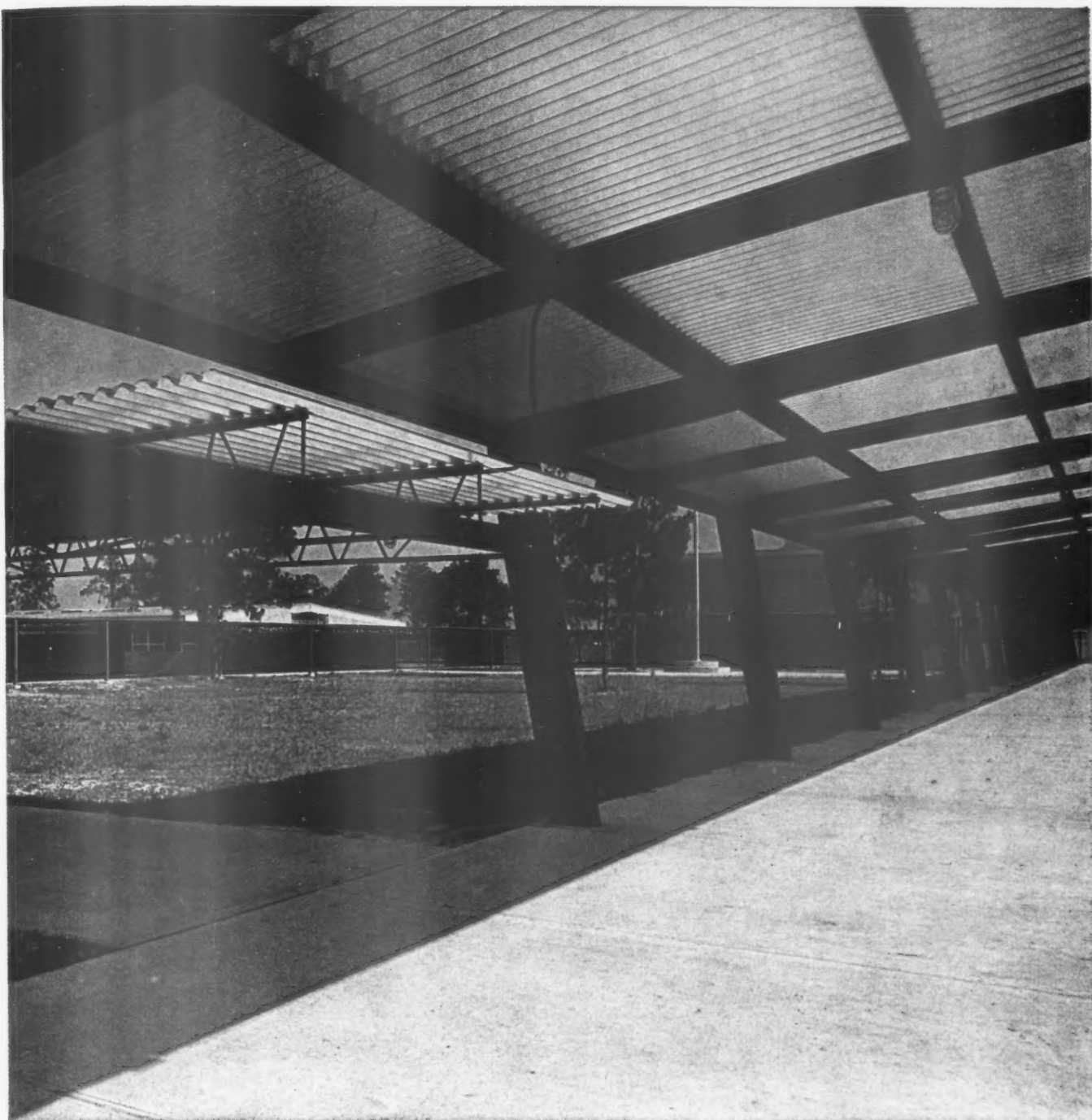
4427 Geraldine Ave., St. Louis 15, Mo.

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(Circle number 735 for more information)





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**BUILDING:** Seminole High School, Sanford, Fla.

**ARCHITECT:** John A. Burton IV, AIA, Sanford, Fla.

**ALUMINUM SUBCONTRACTOR:** Evans Roofing & Heating Co., Sanford, Fla.



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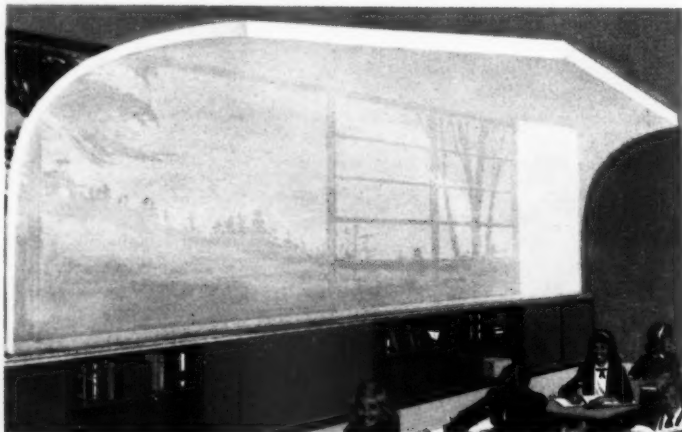


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## **The Trane Kinetic Barrier System gives continuous, room-wide ventilation**

Every student in every part of the classroom has a "fresh air seat" all the time. Students are happier, more comfortable, more alert.

**The reason?** The TRANE Unit Ventilator constantly delivers tempered air under pressure from room-wide wall outlets all day long. This is the TRANE exclusive



*Kinetic Barrier* system that prevents chilling drafts from spilling down off the windows and over to the desks along the outside wall. Next, this barrier of air moves to the ceiling where it mixes with room air and continues to circulate—evenly and gently—into every corner of the room.

**Air conditioning now—or later!** You may include air conditioning when you install the TRANE Unit Ventilator system—or you may easily add it later. It's designed for easy addition of a remote source of chilled water; no classroom remodeling is necessary.

**Versatility.** TRANE Unit Ventilators provide just the type of system needed; hot water, steam, chilled water or electric heating. Same space-saving cabinet used for all types.

**Simplified maintenance.** All maintenance can be performed easily by school engineer. Panels, easily removed and handled by one man, provide access to all working parts. Fans are easy to clean; filters easy to change. Fan and motor bearings are easy to lubricate.



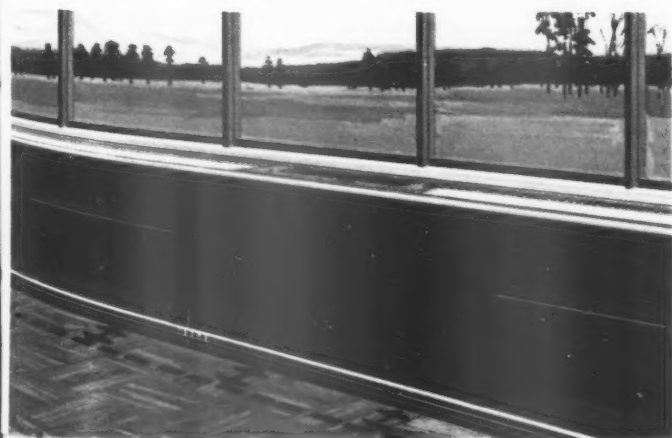


# **Get more classroom space with Trane Unit Ventilators**

**New space-saving design  
 gives you as much as 14 sq. ft.  
 more usable floor space**

With floor area running about \$15 a square foot, this is a big savings! The new TRANE Unit Ventilator is 21% thinner than other makes of heating units—29% thinner than other makes of heating-air conditioning units.

**More classroom space.** The actual depth of the



new TRANE Unit Ventilator is only 11 5/8", for heating and ventilating, or for complete heating-ventilating-air conditioning. This is 4 3/4" less than other units with complete air conditioning. In an average classroom you get approximately 14 sq. ft. of extra, usable and valuable floor space!

**Helpful booklet—FREE.** For your copy of "A Climate for Learning," contact your nearby TRANE Sales Office—or write to TRANE, La Crosse, Wisconsin.

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What two words did you hear in each word?

Frame shown is from a set of six filmstrips, "Phonics—A Key to Better Reading" by Society For Visual Education\*, Inc.

*How to focus on phonics  
...yet make learning a TREAT!*



**PHONICS** can be a boring struggle for students and teacher alike. To dispel this drudgery, a teacher combines today's compelling filmstrips with class participation. After introducing a filmstrip to her reading group, she permits the children to individually review the strip for the class. Each pupil takes pride in being part of the project—finds learning phonics can be fun—and develops presence and confidence by speaking in front of the class.—Just one example of how filmstrips or slides, plus a measure of creativity, can make dull subjects vivid, living and interesting. For a wealth of helpful information send for the 48-page Graflex Audio-visual Digest, containing leading AV articles from the past three years. 25¢ per copy. Free to AV directors.

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# How to get votes for

## REORGANIZATION

Overcoming resistance to reorganization is a lot easier if basic steps are taken in the early stages. Here's what you can do to establish a "climate" for merger.

■ ■ ■ No superintendent or principal can contemplate consolidation of his district with another, without also thinking about the possibility of losing his job—or having to accept a subordinate position.

Similarly, some board members may not be board members any longer (with a consequent loss of social status). Fewer teachers may be needed and some might have to relocate. Sometimes, conservative community leaders will fight reorganization simply because it means a change.

These elements often form the hard core of resistance to school district reorganization.

But a merger of several small districts usually means an increase in educational efficiency. Reorganization can bring coordination in curriculums. It often solves such troublesome minor problems as irregularities in the school calendar. There may even be ways to economize—fewer school buses may be needed, for example.

How is reorganization accomplished over hardy resistance? In the state of Washington, several techniques have been used so effectively that 96.4% of public school enrollment is in districts offering education from kindergarten through secondary school.

According to Tillman Peterson, director of school district reorganization for Washington, successful plans for reorganization are direct-

ly dependent on establishing the right "climate" for merger in the early stages, and the earlier the better. "When taxpayers begin to get restive or make constructive criticism about their schools, the time is ripe," he says.

### What to do

Based on his experiences with Washington's reorganization problems, Peterson recommends several steps which can be taken in the early stages to pave the way for a successful referendum for consolidation. Four of the most important include:

**1. Form an advisory committee.** Opposition to consolidation, like anything else, may pop up unexpectedly anywhere. Prepare yourself by forming an advisory committee representing groups of citizens in districts which may be affected by reorganization. This committee will study reorganization, of course, but it may also discover the seeds of opposition and give warning of trouble before it fully develops.

Moreover, the committee will help you crystallize your own favorable opinions, and activities of this committee will draw the public's attention to the issue.

The committee membership should include the leaders of resistance to reorganization. Frequently, says Peterson, these persons lose their objections and vehemence once they become





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**DIRT DISAPPEARS INSTANTLY** with All-Purpose Cleaner. Weekly tells Rockport Elementary School Custodian Pete Ramirez how West soap-detergent-chlorophyll formula dissolves in any type water.

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aware of the other side of the argument. When this happens, they may become your best salesmen. Not having them on the committee at all is a fatal mistake.

**2. Let smaller districts make the first move.** Representatives of larger districts, be they school authorities or the public, should not initiate a proposal for unification. Even if it results in a delay, it is far more effective to allow the smaller districts to make the first move, such as petitioning for reorganization.

As Peterson explains it, this is good political strategy. Whenever larger districts start talking about consolidation, they furnish the opposition with ammunition: "They've got plans to swallow us up!" This charge may not be deserved, but it's a powerful argument that can cloud the real issues in a reorganization campaign.

**3. Get sociable.** Once the subject of unification has been approached, a homey but effective device to resolve conflicts between districts is to hold a dinner meeting. The same technique can be used to settle difficulties between leaders of opposing factions.

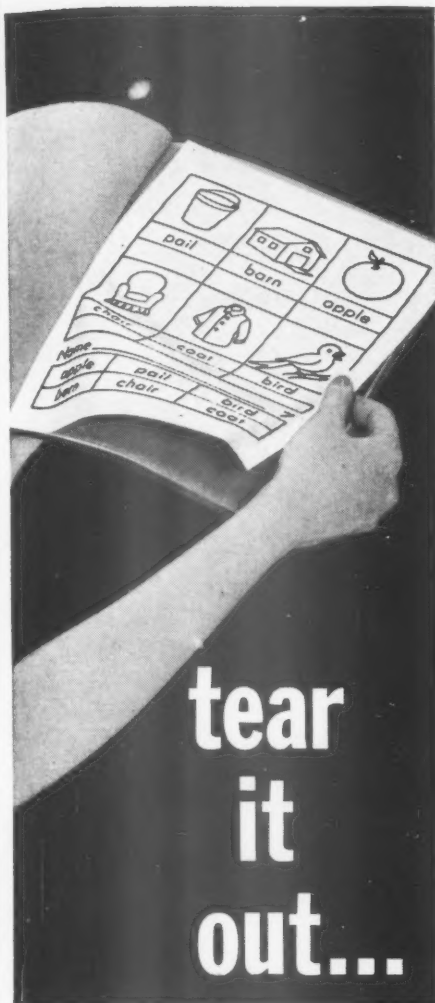
"There's something about sharing a meal," says Peterson, "which causes opponents to relax and get friendly. Free of the formalities and restraints of parliamentary procedure, people with opposing opinions find they can talk to each other and settle their differences."

**4. Enlist parental support.** Parents are the most influential force in securing reorganization. Enlist their help early, says Peterson.

For parents, one convincing argument is that consolidation of several districts will enable schools to offer a diversity of courses. This could mean accreditation of a high school, and in most cases, students must graduate from an accredited high school before they will be admitted to college.

Above all, never let parents—or any taxpayers—start wondering about the status of reorganization plans. From the very beginning, make sure you keep up a steady flow of information to the public. An uninformed voter is much more likely to join the opposition than one who has all the facts. **End**

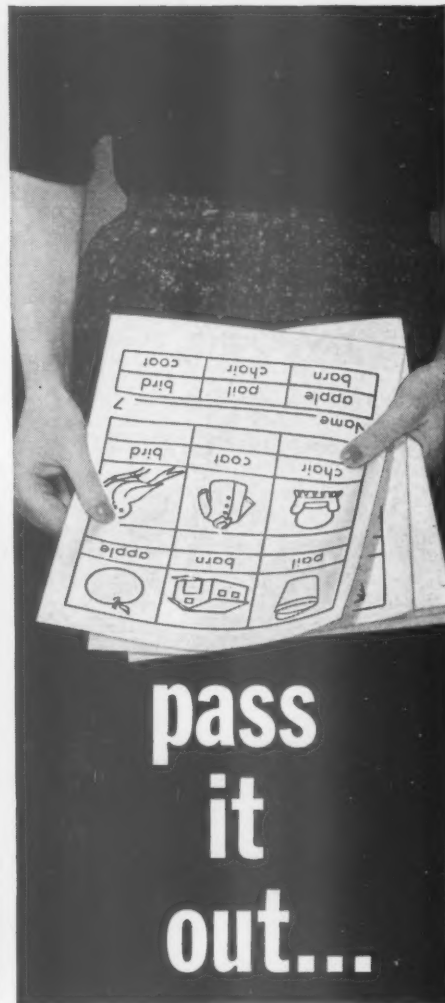




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▼ **Relieves overcrowding.** An eight-page illustrated brochure details the specifications and dimensions of trailer classrooms manufactured by the Fort Wayne Leasing Co., Inc. These mobile trailers are equipped to seat up to 39 students. They are available with or without restrooms, have heating and ventilating equipment self-contained, and can be "installed" simply by levelling on concrete blocks and connecting to utilities.

*For a free copy of the brochure, circle number 862 on the Reader Service Card.*

▼ **Planning for better audio-visuals.** The Radiant Manufacturing Co. has published a guide to preparing a room for better use of audio-visual equipment. Among the subjects discussed are architectural arrangements for projection rooms, use of charts to establish proper lens focal length, techniques in projecting moving and still pictures, screen installations, and the use of sound and color. The techniques of showing films, slides and filmstrips are ex-

plained, and there is helpful information on problems of light, room shape, seating, sound, and projector lens variations.

*For a free copy, circle number 894 on the Reader Service Card.*

▼ **Ways to improve your cafeterias.** An illustrated brochure published by Blaikie Miller & Hines, Inc., a food service management and consulting firm, describes basic food service methods and defines the science of food management. The booklet discusses such topics as planning efficient and economical food service methods, the layout of facilities, and menu planning. There is also a listing of some advantages of using a food service management organization.

*For a free copy, circle number 867 on the Reader Service Card.*

▼ **The history of photography.** Your photography teachers may find this book helpful. Written by a former director of photographic research, it reviews the earliest photographic processes, then explains research on sensitizing dyes, emulsion making, etc. One portion of the book explains the founding of the Kodak Research Laboratories.

*For a free copy, circle number 896 on the Reader Service Card.*

▼ **Partitions rooms economically.** The E. F. Hauserman Co. is now marketing a sliding acoustical wall which can be used to partition large rooms for team teaching in new schools, or to break up large rooms in older schools. The operable wall is de-

scribed in a brochure being distributed by the firm. The wall is made of steel, but has chalk and tackboard work surfaces and operates easily. According to data supplied by Hauserman, the wall delivers a 39-decibel reduction in sound.

*For a free copy of the brochure, circle number 886 on the Reader Service Card.*

▼ **Tools for art metalcraft.** A wide range of equipment for art metalcraft, including jewelry-making tools, buffing wheels, compounds and polishing accessories, is included in this catalog published by Crafttools, Inc. The 16-page catalog is illustrated.

*For a free copy, circle number 859 on the Reader Service Card.*

▼ **Heating and ventilating.** The Carrier Air Conditioning Co. is distributing a comprehensive engineering catalog for large heating and ventilating units and heat diffusers. The 32-page catalog contains selection charts for steam and hot water coil capacities, fan-motor ratings and dimensional data for all models and sizes produced by the firm. The units described in this publication are for schools and large spaces such as auditoriums and gymnasiums.

*For a free copy, circle number 892 on the Reader Service Card.*

▼ **Describes window types.** Cross-sectional drawings, photographs, data on key features and detailed specifications on various types of windows are included in this 20-page  
*continued on page 136*



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OCTOBER 1961





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By Dr. Stephen F. Roach

## Home instruction

### Is it equal to that of "private schools"?

**The question:** Does instruction in regular public school subjects given to a school-age child at home, by her mother, correspond to the "private school" instruction permitted by the compulsory attendance law?

**The facts:** The compulsory school attendance law of the state of Washington requires that all eligible children between the ages of eight and 16 attend either a public or private school.

Beginning in March 1955, the parents of Alta Lee Wold (then 10 years old) withdrew her from the fourth grade of the Shoreline district school. The school board brought suit against her parents on the ground that, by refusing to allow her to attend school, they were contributing to her delinquency. To this contention the parents argued, in part, that the child was being taught the regular public grade school subjects by her mother in their home and that this constituted a private school. After considering the evidence, the original trial court, in August 1955, decreed that the parents must provide, prior to September 1, 1955, "a method for her education in conformity with state law."

At a second hearing, in 1957, the court held that: 1) the Washington state legislature had not provided standards for private schools; and 2) since Alta Lee was receiving "a book learning comparable to that of the public schools," she was, in fact, attending a private school as contemplated by law. This decision was now being appealed to the state Supreme Court.

**The ruling:** The "home school" which the Wold child was attending was not a method of education that conformed with state law.

In its opinion, the Supreme Court first pointed out that the statutory provision permitting attendance at a private school "means more than home instruction. It means the same character of school as the public school—a regular, organized and existing institution, making a business of instructing children in the required studies and for the full time required by the laws of this state. . . . This provision of the law is . . . to be determined by the purpose, intent and character of the endeavor."

The court then added: "The parent who teaches his



### About the author

Dr. Stephen F. Roach is editor of the *School Law Review* and is an assistant principal in Jersey City, N.J.

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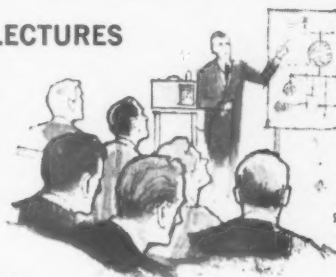
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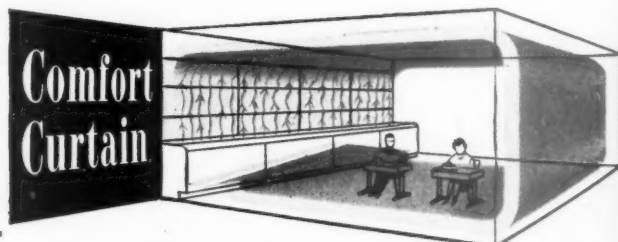
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(Circle number 730 for more information)

children at home, whatever be his reason for desiring to do so"—in the case of the Wold parents, it was alleged to be their religious beliefs—"does not maintain such a school."

Having noted earlier that Alta Lee's mother was only a high school graduate, the court now commented: "The three essential elements of a school are (1) the teacher, (2) the pupil or pupils, and (3) the place or institution. If the alleged school has no teacher, then it does not qualify as a school. There is one standard which the legislature made applicable to all schools, both public and private, and that standard is that the teacher must be qualified to teach and hold a teaching certificate. . . . The Wolds had the place and the pupil, but not a teacher qualified to teach in the state of Washington. Their alleged private school did not legally qualify as such."

In addition, it was noted that the Wolds had not submitted to the various state and county educational officials the reports which the statutes required of "private schools."

Therewith the Supreme Court held that the home instruction being given to the girl was not equivalent to that which she would have received at an "approved private school."

*State of Washington ex rel. Shoreline School Dist. No. 412 v. Superior Court of State of Washington. In Supreme Court of Washington; decided Dec. 3, 1959; cited as 346 P.2d 999.*

## BOARD MAY FIX RENTS

The powers of a local California school board to fix a rental charge for the use of school property within the limitations fixed by statute is entirely within the discretionary power of the board, and when such limitation is not exceeded, no court will ordinarily interfere in any way with the board's action.

*Henry George School of Social Science v. San Diego Unified S.D. et al.; decided in District Ct. of Appeals, July 22nd, 1960; cited as 6 Cal. Rptr. 661.*

## AGE NOT A FACTOR

The general rule-making and appointive powers of a local New Jersey board of education do not authorize the board to terminate the services of the board's tenure secretary, merely because he has reached the age of 65.

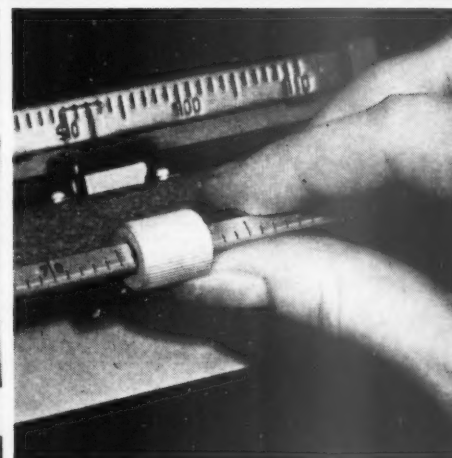
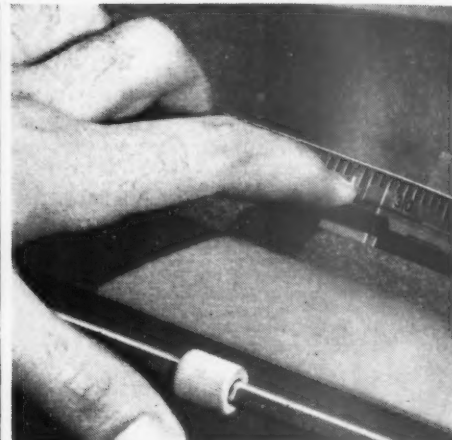
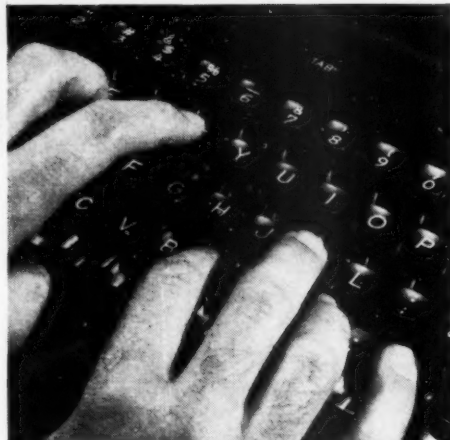
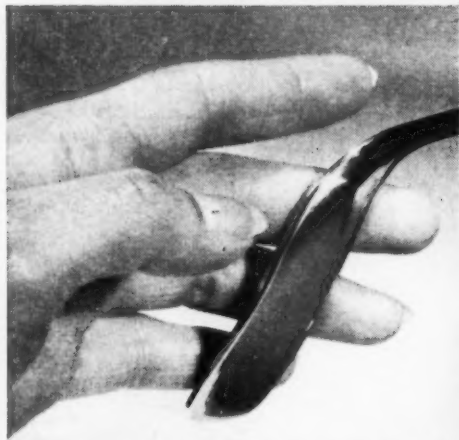
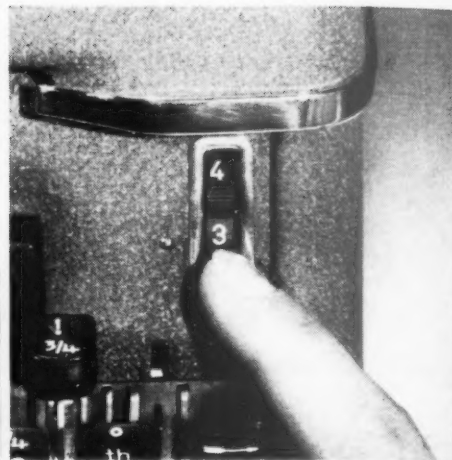
*Messano v. Bd. of Educ. of Jersey City; decided in Supreme Court, June 6th, 1960; cited as 161 A. 2d 475.*

## MUST PRESENT PROOF

One seeking the award of a school construction contract in New York, on the ground that he is the "lowest responsible bidder" has the burden to present proof of his responsibility. He can only support that claim by proving satisfactory performance of contracts he has undertaken in the past.

*Haskell-Gilroy v. Young et al.; decided in Supreme court, August 24th, 1959; cited as 189 N.Y.S.2d 774, 20 Misc.2d 294.*





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# NEWS OF THE SCHOOLS

*A digest of current happenings in public education*

## School districts lose Social Security plea

School districts must make Social Security payments for part-time professional employees. That was the gist of a ruling by Judge John W. McIlvaine in a test case involving 31 districts in western Pennsylvania.

The school districts had asked the court to discontinue Social Security payments for tax collectors, solicitors, auditors, dentists and doctors employed by the schools.

The districts argued that they should not have to make the payments because these people were employed on a part-time basis and often received refunds on their Social Security payments. The schools do not receive refunds in these cases.

In turning down the plea, Judge McIlvaine did not rule on the merits of the case. His ruling was based on lack of jurisdiction and improper serving of papers.

## Houston plans credit checks on teachers

All new teachers and all those desiring promotion in the Houston, Tex., school system will be checked for their credit rating under a new policy being implemented by Superintendent John McFarland.

McFarland said "slow payers" will not be flatly disqualified in seeking jobs, but that "faulty credit rating" would influence future decisions.

All professional personnel will be affected by the new policy which is based on the assumption that teachers should serve as good examples to their pupils.

## Researchers say "frills" are real aid to reading

A team of researchers working under grants to the University of California Department of Education, have found that courses often labeled

"frills" are actually helpful in improving reading skills.

Because of this, say Pack A. Holmes and Harry Singer, directors of the study, schools which are eliminating "frill" courses in favor of "strict emphasis on the Three R's," may actually be hurting the skills they are trying to help.

The researchers found, in an eight-year study, that mechanical training, such as shop, was conducive to better reading. Musical ability, too, was directly related to excellence in reading. "We can no longer condone the notion that musical training in the grades is a 'frill' activity to be held apart from 'solid' subjects," the researchers stated.

The study was carried out with the aid of 400 Oakland, Calif. high school students.

## Speed zone bill vetoed in Illinois

A law that would have required 20-mile-per-hour-zone signs to be covered up whenever schools are not

in session, was vetoed recently by Governor Otto Kerner Jr. of Illinois.

Noting that 12,000 such signs have been erected in the state, Kerner said: "It would be a monumental task to cover the signs every Friday evening and uncover them on Monday morning during the school year, as required by this bill."

Kerner said that it was generally understood that the speed limit signs only apply when school is in session. Try telling that to the judge if you're ever caught speeding after hours in front of your school.

## Denver board members told to do some learning

A first-term school board member in Denver, Colo., startled his colleagues recently by suggesting that they take some time to "familiarize themselves with responsible criticism of education."

Board Member A. Edgar Benton not only said it, he offered to do something to implement his words. Benton offered his own home for informal meetings to discuss matters of

## Too good to miss . . .

**Their fate . . .** All 15 students who took the Sewanhaka, N. Y., high school course in agriculture flunked the state's regents examinations. The exam concentrated on dairying and none of Sewanhaka's suburbanite students had seen a cow during the course, much less milked one.

**Get gate . . .** New York City principals must be glad to give the gate to 395 of the 1,094 reports required of them last year. We suppose that some principals regret no longer having to report the success of their children in "Flower Arrangements" and "Finding the Best Way To School," but somehow it all seems for the best.

**Overweight . . .** Who could blame the people of Toronto, Canada, for thinking their school board trustees are somewhat overweight? Ten of the 14 members voted to spend better than \$4,000 each to obtain oversize cars, with oversize doors—the easier to enter, you know.

**Irate . . .** Aldermen in Spencer, N. C. have learned that it doesn't pay to get the citizenry irate. The officials voted to move a \$3,000 supplement for elementary school teachers to the contingency fund. At their next meeting, the aldermen had trouble entering their own meeting room, so crowded was it with PTA members. The officials—to their credit, we guess—beat a hasty retreat. The money was returned to the teachers.

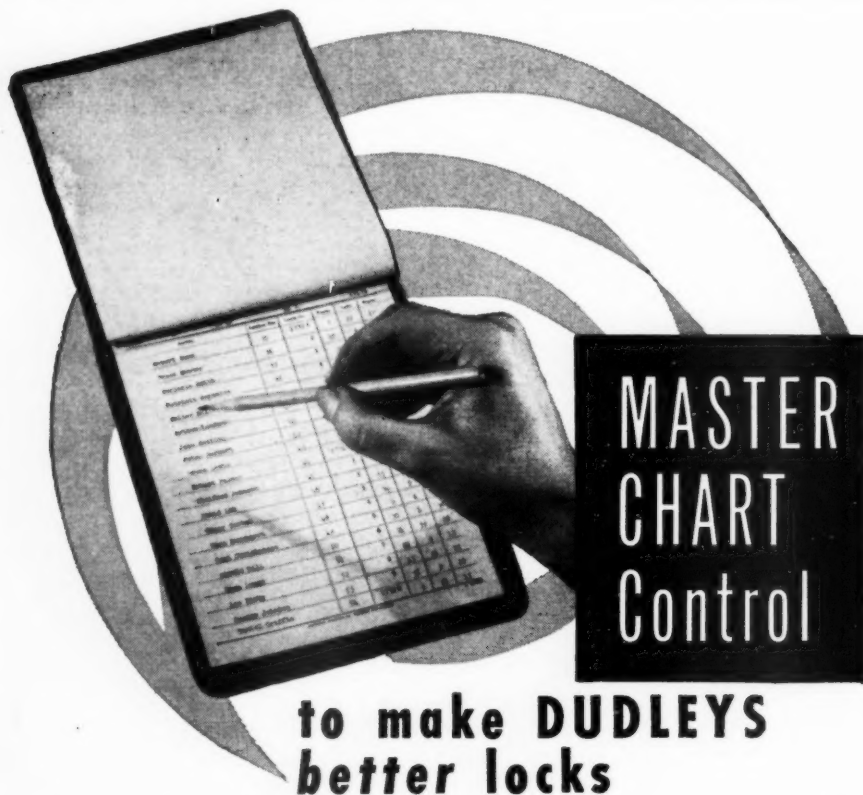


**DO NOT READ THIS UNTIL YOU READ PAGE 97**

*Your answer on page 97 was: "powers."*

We'll get to powers of numbers pretty soon, but we're not there yet. The numbers that are multiplied together to form a product are called "factors," not "powers."

Now return to page 97 and try again.



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Controlled with the utmost simplicity, the proper authorities have instant access to any locker with a complete installation of Dudley Combination Locks like these.

Listed in the Master Chart by number, the correct combination is at your fingertips. No unauthorized person need have access to this Master Chart, yet regardless of any

switching of locks the correct combination is quickly available, identified by the number stamped on every Dudley lock.

The simple control provided for a Dudley Locker Lock installation is only one of the many reasons why Dudleys have been favorites among school people everywhere for more than forty years.



**RP-5**  
Combination Padlock  
with Revolving  
Knob Pointer  
Solid brass case with  
white numbers on black  
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**RD-2**  
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Solid stainless steel case  
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The standard of controlled locker protection since 1921

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philosophy which seldom get time at regular board meetings. In addition, he volunteered to prepare a bibliography of educational material for the inspection of his colleagues.

The self-education idea won immediate approval from Superintendent Kenneth E. Oberholtzer, but board members were more cautious. One warned Benton that he was attempting to "raise the intellectual level of the board."

**Summer classes at night  
successful in Texas**

Summer classes in the late afternoon or evening proved successful in Aldine, Tex. More than 300 students from 10 school districts attended a seven-week session.

Classes were scheduled to start at 4 p.m. and 7 p.m. They ran for 2½ hours.

According to M. O. Campbell, director of the summer school, the end-of-day scheduling made it possible for students to work during the day and still attend school. When classes were scheduled in the morning hours, too many students turned them down because they interfered with work plans.

**Better IQ's**

*Two recent reports have pointed the way to better IQ's for your students.*

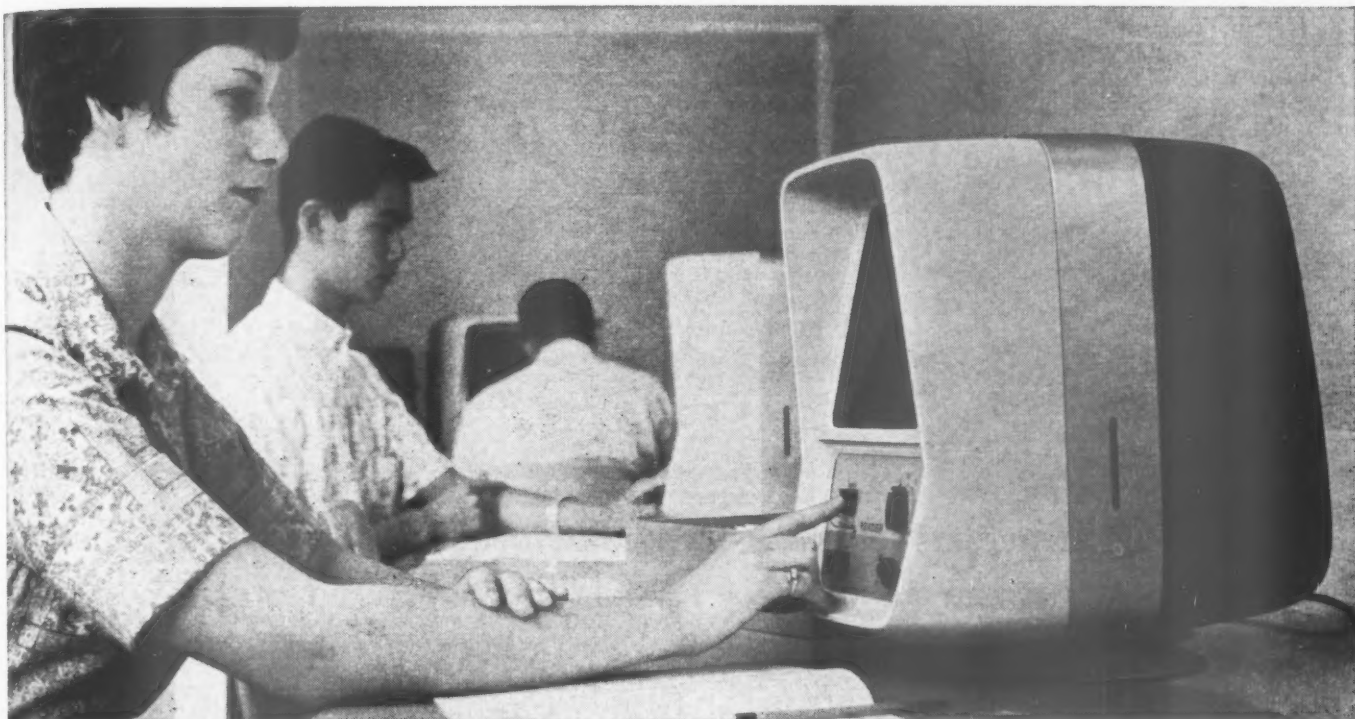
*A California doctor has suggested that students could be given a pill containing the drug, deanol, to increase their alertness and intelligence quotient. But, warned Dr. Leon Oettinger, don't be too optimistic about this solution. It might work on only 50% of your students.*

*How about the other half? There's a solution for them too. Offer them milk as a reward if they do better on their IQ tests. At least this is the conclusion of a recent report submitted by Psychological Dynamics Inc. If students don't respond well enough to this stimulus, the researchers say, raise the ante. Offer chocolate milk, and then watch the IQ's rise.*

*P.S. Just so it won't be lost in the shuffle, neither study says so, but a good teacher might help, too.*



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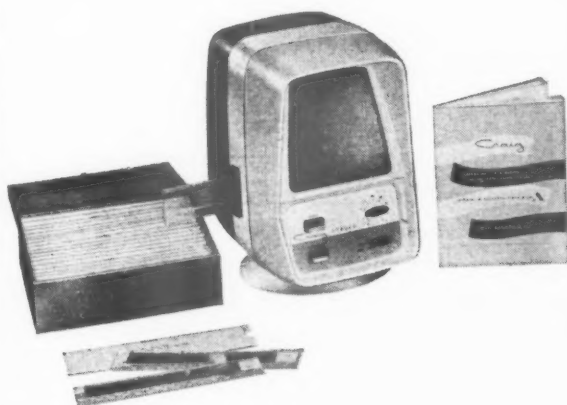
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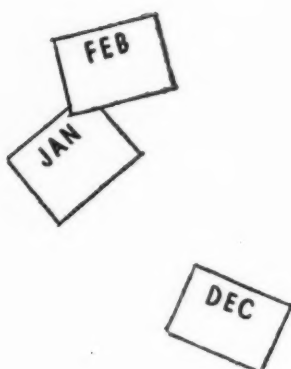
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## DO YOUR TEACHERS



Once a teacher has tenure, he is a permanent member of your school district. But the majority of schools in the United States bestow this honor on a haphazard basis. Here's how one district evaluates its probationary teachers, so that only the best are retained.



■ ■ ■ It's easier to divorce your wife than it is to fire a teacher who has tenure.

When a school board decides to bestow tenure on a teacher, it is committing itself to a lifetime affair. Most tenure laws set up barriers that make firing at best difficult; at worst, a messy trail through courts of law and public opinion.

Most reasonable people, however, will agree that tenure laws are of great value. They have helped to make teaching a profession by giving good teachers security and keeping them in the field. On the other hand, they also give security to poor and mediocre members of the teaching staff.

The problem lies not with the laws—but with the failure of most school districts to adequately screen teachers.

The decision to give tenure is one of the most important a school district can make. But the great majority of districts have no regular structured procedures for evaluating their nontenure teachers.

An unscientific—but revealing—spot check at last February's San Francisco meeting of the AASA, found only two superintendents in 11, whose districts had regular procedures for granting tenure. A similar check a month later at the AASA's eastern regional meeting produced a like result.

The average teacher gains tenure as a matter of course after surviving a given number of years in a single school district. Several superintendents confessed to not even being aware of the point at which teachers in their district passed from probationary status to



# DESERVE TENURE ?

tenure. Contracts, they said, were simply awarded from year to year on the basis of whether or not a teacher did a satisfactory job. No consideration was given as to his qualifications to stay with the district over a period of 20 or 30 years.

## A structured program

Bellflower Unified School District, Bellflower, Calif., is one district where the decision to give tenure is based on a structured system of teacher evaluation. Every probationary teacher is evaluated from the moment he joins the school staff. Principals, administrators and teachers all take part in the process. Weak teachers are usually screened out after the first or second year. Even so, in the 13,000-student district, 40 to 50 good teachers are given tenure each year.

To find out how the Bellflower program operates, a SCHOOL MANAGEMENT editor went to California to interview Superintendent Norman Wampler and Dr. Margaret Louise Orear, deputy superintendent for educational services. The following article is drawn from that tape-recorded meeting.

**Q Dr. Wampler, under California law, when you hire a teacher you have three years in which to make up your mind whether or not to make this person permanent. When do you start considering a teacher for tenure?**

WAMPLER: We do not believe that we can judiciously decide whether or not to give a teacher tenure

during the spring of his third year, unless we have been carrying on an extensive program of evaluation right from the first moment we meet him.

OREAR: We have an orientation program for our new teachers before school opens. At this time our principals have an opportunity to meet with their new teachers. So, I guess you could say that, informally at least, evaluation starts right then and there. But formal evaluation starts a little later.

**Q. Does the teacher know that he**



**NORMAN WAMPLER**  
Superintendent  
Bellflower, Calif.



**MARGARET OREAR**  
Deputy Superintendent  
Bellflower, Calif.





*"If a school district is willing to spend the time and effort to do a complete evaluation, it should have no difficulty in selecting the right teachers to be granted tenure."*

**WAMPLER**

is being evaluated during his first year at the school?

**WAMPLER:** Yes, he certainly does. We send him a handbook even before he comes to us. Among the things that this handbook covers is teacher evaluation. We not only state that the teacher is going to be evaluated, we tell him on what bases this evaluation will be made.

**Q.** Who is the primary evaluator of your teachers?

**WAMPLER:** The principal. Under our plan, he is the most important individual in this evaluating process. He, after all, lives most closely with the teacher and has the most opportunity to observe the teacher's work.

**Q.** This puts quite a bit of pressure on the principals. Do you give them any help in their evaluation? That is, do you give them any training, any guidance?

**WAMPLER:** O yes. In the first place, since we feel that supervision and evaluation are such an important part of the principal's job, his skill and competence in these areas is one of the bases on which we select him. Then, we provide all our principals with a uniform evaluation score sheet. This attempts to list the areas about which we are concerned. The main headings relate to teaching performance, professional responsibility and personal characteristics. (See opposite page.)

**OREAR:** In addition, we have a

guide to the use of this evaluation form that was prepared by the principals themselves. It is a device that defines rather specifically, by illustration, what each one of the items means. The preparation of this guide was actually part of our training program for principals so that we would have reasonably uniform interpretation of the individual items.

**Q** *Let's look at your evaluation form a little more closely. You have teaching performance as your first criterion. How would this be judged by an individual principal?*

**OREAR:** That would be judged primarily on the basis of the principal's observation of the teacher's classroom work and also through conferences that the principal has had with the teacher as they were planning together. We expect our principals to look over each teacher's lesson plans and course outlines, to see that he is planning adequately and appropriately for the particular group he is teaching.

**Q.** How much classroom observation would be done?

**OREAR:** Each time a principal makes a formal evaluation of a teacher, it is normally based on at least two or three substantial observations and other drop-in visits.

**WAMPLER:** If a teacher was obviously struggling, there would probably be more. If the teacher had outstanding ability, or successful experience from another district, it might be less, but this would be a good average.

**OREAR:** It's very important how the principal does this observation. Some teachers are very sensitive. It's important that the principal build rapport, and understanding with the teacher. The principal tries to set a climate in which the teacher recognizes him as a co-worker attempting to improve the educational process, rather than just judging another human being. The principal's skill is an important factor and principals do vary in this regard.

**Q** *Your second major heading is professional responsibility. How would that be judged?*

**OREAR:** Professional responsibility is probably more subjective to evaluate but for the most part such appraisals come through incidental contact, as the principal sees the teacher working with other staff members and as he meets with him in faculty meetings.

**Q.** Is this something that the principal might discuss with other members of the faculty?

*text continued on page 130*



## ANALYSIS FOR PROFESSIONAL GROWTH

### —Probationary Teachers

NAME ..... YEAR: 1 2 3 DATE: .....

Outstanding  
Strong  
Making satisfactory  
progress  
Needs to improve  
Unsatisfactory  
No opportunity  
to observe

#### TEACHING PERFORMANCE

1. Demonstrates competency in the subject taught.
2. Does long-term planning with clear and purposeful goals.
3. Does functional daily planning and preparation.
4. Maintains a flexible program to take advantage of immediate educational situations.
5. Provides a classroom environment conducive to learning.
6. Selects appropriate techniques of teaching in relation to objectives.
7. Makes clear and concise explanations and assignments.
8. Provides desirable classroom organization and management.
9. Maintains control based on an understanding of pupils.
10. Provides for the individual needs of pupils by using suitable resources, methods, and materials.
11. Issues grades consistent with district philosophy and policy.

#### PROFESSIONAL RESPONSIBILITIES

1. Sees own assignment in relation to the total school program.
2. Works constructively with all school personnel.
3. Is prompt and regular in acceptance of school responsibilities.
4. Participates in and assists with activities.
5. Assumes responsibility for materials, supplies, and equipment.
6. Adheres to school and district policies and procedures.
7. Shows evidence of professional growth.
8. Observes professional ethics in relationships with others.

#### PERSONAL CHARACTERISTICS

1. Conducts self in a manner favorable to the teaching profession.
2. Gains the confidence and respect of others.
3. Meets everyday problems with objectivity.
4. Seeks to understand situations before making judgments.
5. Shows respect for opinions and beliefs of others.
6. Exhibits discretion and tact.
7. Gives careful attention to personal grooming and appearance.
8. Has endurance, vitality, resistance to illness.
9. Possesses a wholesome sense of humor.

#### SPECIAL INTERESTS AND ACTIVITIES:

#### COMMENTS AND RECOMMENDATIONS:

Dates of Observation:

Principal's Signature: \_\_\_\_\_

I have read this evaluation.

Teacher's Signature: \_\_\_\_\_

*Any teacher wishing to discuss this evaluation further may make an appointment with the superintendent.*



# The new look in

## CLASS SCHEDULES

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*"Humanities classes are held in the morning; science and math in the afternoon. As a result, most teachers in each division have time off together."*

## TEACHER RESPONSIBILITIES

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*"We're not a nine-to-three group. We're an eight-hour-plus-Saturday faculty — and that's the minimum for what most teachers are doing."*

## STUDENT PROGRAMS

*"As a rule of thumb, each Ridgewood student spends an equal share of his time in large-groups, seminars, and individual study."*

Every traditional method of teaching is being challenged in Norridge, Ill., where schoolmen have organized faculty, students, curriculum and schedule to provide a type of education available nowhere else in the United States today.





**Melvin P. Heller**  
*Assistant  
Superintendent*



**James E. Smith**  
*Administrative  
Assistant*



**Bettye Belford**  
*Team Chairman*

■ ■ ■ In 1959, when Dr. J. Lloyd Trump published his pamphlet "Images of the Future,"\* his plan for reorganizing the high school was either ignored or deplored by most of the educational press.

Dr. Trump's "error" was in suggesting that the comfortable things schools had been doing for many years, might not be ideal. He asked schoolmen to re-examine their schedules, their organization, their teaching staffs, to see if they couldn't be somehow reorganized to do a better job.

The Trump approach recognizes three basic types of learning:

1. The student must be exposed to a large, organized mass of information.
2. He must sift through this material and then test his ideas and conclusions in open discussions, especially with other students.
3. He must try to master in some detail, through his own efforts, at least one narrow segment of the subject.

In theory, all these learning situations are present in the traditional classroom. In practice, according to Trump, the classroom frequently degenerates into lectures with little student response, or free-for-all discussions based on insufficient information.

His alternative was simple: let the students meet in large groups for lectures, in relatively small groups for seminars and in very small groups for work on individual projects. Teachers of each subject could decide among themselves who should handle each aspect of the teaching. Each student would come into contact with several teachers for each subject and the teachers would collaborate in

planning the large-group sessions.

"When you come right down to it," Trump told SCHOOL MANAGEMENT editors, "we're holding up to question almost everything that an administrator has been doing all his life . . . I think there is a natural resistance growing out of concern about how to do the job."

Some of Trump's ideas were in use even before he published his work. For example, team teaching was being tried in Lexington, Mass. (See SM, Dec. '58). In San Angelo, Tex., aides and secretaries relieved teachers of some of their more onerous duties (SM, May '58). And in Newton, Mass., the teachers and the student body were being reorganized in an attempt to find a better way to present material (SM, July '58).

Interest in the "Trump Plan" has grown steadily. Team teaching, large-group lectures, individual study have become by-words wherever schoolmen meet. Bits and pieces of the Trump ideas are being adopted and adapted to the needs of individual schools.

This is exactly the pattern that Trump had predicted would—and should—happen. "There is nothing sacred about the report," he said. "Each district will have to take what it can and discard that which doesn't apply."

#### **The complete plan**

One school district in the United States has adopted the whole Trump plan. With a few minor variations (i.e., the time a student spends in each kind of study), Ridgewood High School, Norridge, Ill., has organized its students, its faculty and its building around the Trump proposals.

How does Trump's "Images of the Future" work in the present? What are the weaknesses, the strengths, the problems? What adjustments are needed in transferring theory to practice? How do faculty, students and administrators react?

To learn the answer to these

\*IMAGES OF THE FUTURE, By J. Lloyd Trump. Published by the Commission on the Experimental Study of the Utilization of the Staff in the Secondary School. Order from National Association of Secondary School Principals, 1201 16th St. N.W., Washington 6, D. C. Free.



and other questions, SCHOOL MANAGEMENT sent an editor to Norridge to see the school in action and to interview members of the faculty and administration. The following article was drawn from tape-recorded interviews with Dr. Melvin P. Heller, assistant superintendent in charge of curriculum; Mr. James E. Smith, administrative assistant; and Miss Bettye Belford, co-chairman of one of the school's two teacher teams.

■ ■ Norridge and Harwood Heights, Ill.—just outside the Chicago city limits—together form High School District 234, a middle-class residential area which, like many others, is gradually becoming industrialized.

If you should drive past the district's Ridgewood High School, you'd see an ordinary building, just about average in size and cost. When it opened in September 1960, only the ninth and 10th grades were enrolled; it will be at full strength—1,000 students—next fall.

Total cost of the school—including the site, building and equipment—was a not-unusual \$2.5 million. Operating costs are in line with those of neighboring districts.

An ordinary school in an ordinary community—or so it seems. But appearances can be misleading. If you stopped and paid a visit to Ridgewood High, here's what you'd find:

■ There are no classes of 25-30 students. (Instead, classes meet in groups of four to six, or 10-15 and 65-130 students.)

■ There are no standard classrooms. (But there are many other assorted working spaces, from individual carrels to large lecture halls.)

■ There are no traditional classroom teachers.

■ There are no study halls. (Pupils work alone on advanced projects, with subject teachers as consultants.)

■ There are no departments of English, math, science, language or other subjects. (Teachers are

grouped in two divisions: humanities and science-math.)

■ Students conduct their own discussion periods, while their teachers "guide silently and subtly."

■ Teachers frequently lecture in subjects other than their own.

■ Class periods range from 20 to 80 minutes. Classes of different lengths overlap almost all day, but there are no passing bells.

■ Teachers are unscheduled for nearly half their time. (Yet they consistently work overtime.)

■ The school's main concern is with what the students will learn after they graduate.

## Two goals

To understand what is happening at Ridgewood, one must start not with techniques but with goals. For the most striking fact about Ridgewood is its sense of *purpose*. Despite all its innovations, the school is not infatuated with methods. Ridgewood knows where it's going and it looks upon its new program, quite simply, as the best way it can find to get there.

This new program takes into account, of course, all the traditional goals of secondary education. It stresses intellectual discipline. It provides intensive training in all traditional subject-matter areas—academic, business, vocational and home economics—along with a full roster of extracurricular activities.

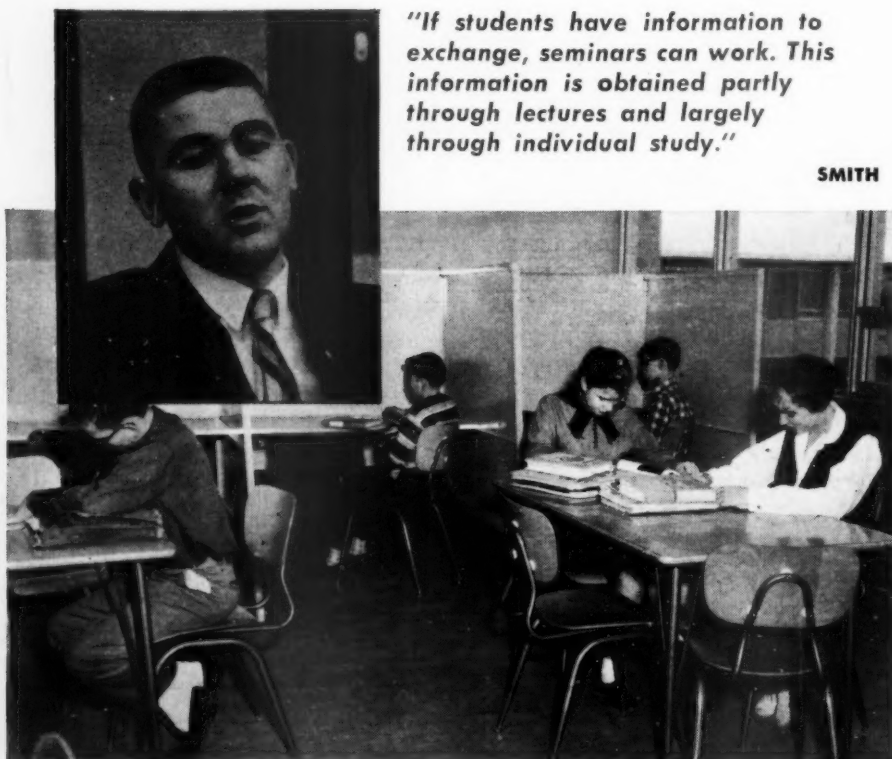
But Ridgewood is not content with these goals alone. It has little patience with the notion that a school's responsibility ends just after graduation, when the student has been accepted into a good college or a promising job. Ridgewood will not count itself successful unless it has a permanent impact on its students' lives.

This distant vision has taken shape in two explicit goals which are the driving power of the new program.

First: to make each student vividly aware of the unity of all knowledge. In theory, each of the usual subject areas can be taught as an end in itself; a student can "master" the French language, for

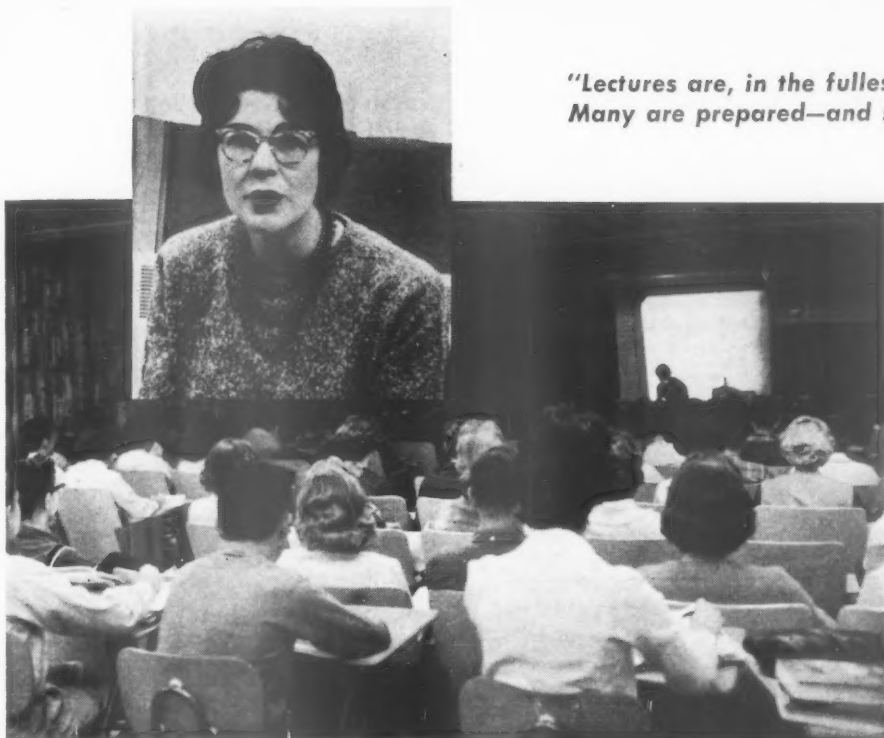
*"If students have information to exchange, seminars can work. This information is obtained partly through lectures and largely through individual study."*

SMITH



**Individual study** can take place in any one of 12 areas around the school. Students choose to work in that area most suited to their particular needs.





*"Lectures are, in the fullest sense, a team project.  
Many are prepared—and some presented—by several teachers."*

BELFORD

**Large-group** sessions are held for every course. They range in size from 65 to 130 students, are held in rooms prepared for audio-visual presentations.

example, without knowing French history, science or art. In reality, says Ridgewood, this is impossible. Any curriculum which teaches a student to think in terms of artificial disciplines has, in the long run, led him astray.

At Ridgewood, says Superintendent Eugene R. Howard, "we try to tie in all the knowledges." Instruction is offered in all subject areas, but the school makes a concerted effort to break artificial barriers between them. As official policy, it "encourages teacher cooperation across subject-matter lines, so that students may achieve a depth of understanding not usually possible."

Second, and most important of all: to nourish in each student a lifelong initiative for self-education.

If a student graduates from high school or college and never again reads a challenging book, or delves into the arts and sciences, can he be called an educated man? Ridgewood is determined to quicken every student's mind, not just for four years but for his lifetime. A mastery of his courses now is important, but it is not enough. The *methods* of instruction must be such as to inspire in

him a taste for learning, confidence in his ability to teach himself and a lasting drive to enlarge his intellectual horizons.

Throughout his high school years, therefore, each student is expected to shoulder the main re-

sponsibility for his own education. Individual projects are strongly encouraged. Emphasis on developing strong student leadership is school-wide.

Unity of knowledge and initiative for self-education: these two goals are the essence of the Ridgewood program. Together they account for nearly all the innovations that set Ridgewood apart from every other high school in America.

#### Unity of knowledge

How can you break down the barriers between subject areas, while leaving the subjects themselves intact? Ridgewood found its answer in a radically new administrative design involving its faculty and its daily schedule.

Teachers are grouped so as to encourage cooperative planning across subject lines.

They are scheduled so as to encourage the actual exchange or sharing of classes by teachers of various disciplines.

The Ridgewood faculty is

*"An able student chairman can  
direct a discussion, change  
the subject, lead the group."*

HELLER



**Seminars** afford an opportunity for students to test out their ideas, exchange opinions, initiate research. Teacher does not lead discussion but guides it.



### Individual Teacher's Schedule: Ridgewood High School

8 AM	Monday	Tuesday	Wednesday	Thursday	Friday
9 AM	Hist. 10B Large Group	Hist. 10A Large Group	Hist. 10B Large Group	Hist. 10A Large Group	Hum. 10A Large Group
	Hist. 10B <sub>2</sub> seminar	Hist. 10A <sub>1</sub> (acc) seminar	Hist. 10B <sub>2</sub> seminar	Hist. 10A <sub>1</sub> (acc) seminar	Hum. 10A <sub>1</sub> seminar
10 AM	Hist. 10B <sub>3</sub> seminar	Hist. 10A <sub>3</sub> seminar	Hist. 10B <sub>3</sub> seminar	Hist. 10A <sub>3</sub> seminar	Hum. 10A <sub>3</sub> seminar
11 AM	Hist. 10B <sub>6</sub> seminar	Hist. 10A <sub>1</sub> seminar	Hist. 10B <sub>6</sub> seminar	Hist. 10A <sub>1</sub> seminar	Hum. 10A <sub>1</sub> seminar
NOON	PLANNING, CONFERENCES, AND PROFESSIONAL ACTIVITIES				
1 PM					
2 PM	Hist. 9B <sub>2</sub> seminar			Hist. 9B <sub>2</sub> seminar	
3 PM	PLANNING, CONFERENCES, AND PROFESSIONAL ACTIVITIES				

grouped in two broad divisions, or teams: humanities and science-math. The former consists of English, history, foreign languages, music and art. The second comprises everything else—science, mathematics, business, the practical arts and physical education. "We may modify our boundary line," says Mr. Howard cautiously, "but thus far that's what it is."

Each team is responsible for planning the instruction in its province for all grades. Teachers of each subject tend to meet spontaneously to coordinate their work and plan their course of study. "These groups—or sub-teams—develop naturally," says Assist-

ant Superintendent Melvin P. Heller. "They don't need a special push." But the plans of these unofficial sub-teams are reviewed and evaluated at regular and frequent meetings of the whole team.

Adjustments are made in the content and timing of various courses to facilitate a crossing of subject lines. During the spring, for example, a history unit on the French Revolution was planned to coincide with an English unit on Dickens' *A Tale of Two Cities*. The teacher of French gave background lectures to both classes; the art and music teachers spoke to the history class about the state of the arts in France at that time. The

result was a burst of interest in the English and history classes, and those students brought their excitement into their classes in French, music and art. The tonic was felt throughout the humanities division.

#### Leadership

Each team is headed by two co-chairmen, who are appointed by the superintendent. These four team leaders were chosen both for their skill as teachers and for their knowledge of several subjects. Their function is to lead, not to rule. "Every teacher can influence the team's decisions," Dr. Heller observes. "There is a close relationship between team chairmen and teachers, between administration and teachers, between team chairmen and administration—up and down the hierarchy."

#### Scheduling

If teachers are to plan their work cooperatively, they must have free time in common during the school day. If they are to carry out their plans, they must have a convenient way to share and exchange classes. Both these requirements are met at Ridgewood by a careful engineering of the daily schedule.

Teachers are assigned to classes for approximately half the school day (see box at left). Their unscheduled time—in blocks of 100 minutes or more—is devoted in part to consulting with students who are working on individual study projects, in part to preparing for their own class sessions. But a great deal of time is given over to joint planning.

Not all of this joint planning is prearranged. "Sometimes when teachers are just sitting-around, an informal meeting will occur," says Superintendent Howard. This fervor shows also in their working hours: most teachers don't leave the school until 4:30 or 5:00 p.m., and many come in to work on Saturdays. "We're not a nine-to-three group," says Administrative Assistant James Smith. "We're an eight-hour-plus-Saturday group

*text continued on page 122*



# How to avoid 'BARGAINS' in school supplies

'Price is no substitute for quality,' say school officials in Jacksonville, Fla. Testing manufacturers' samples, they prove quality by comparison, pay more to get better products, but save thousands every year. Here's how to get the most for your money.

By WALT WHITE  
*Duval County School District  
Jacksonville, Florida*

■ ■ ■ Any school district that automatically accepts low bids from contractors and suppliers is committing an economic boner.

It stands to reason. Every smart shopper, whether housewife or school board, realizes that low price doesn't even guarantee low cost.

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**Editor's note:** Mr. White was assisted in the preparation of this article by Clarence Jones of the Jacksonville Journal.

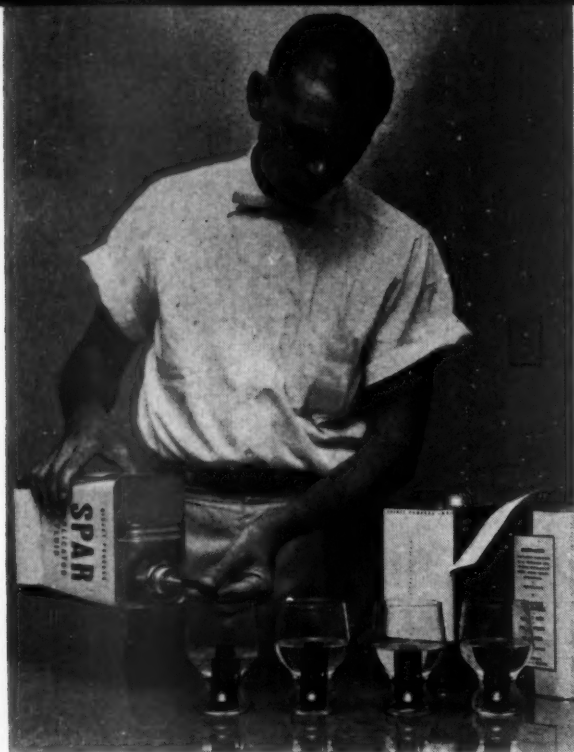
As purchasing agent in my district, I make sure we get high quality merchandise by testing and comparing manufacturers' samples *before we buy*, often before we write bid specifications. We have found, for example, that a 39-cent typewriter ribbon actually costs three times as much as a ribbon selling for \$1.98. We know that a "bargain" floor cleaner at 40 cents a gallon actually costs six times as much as a better product selling for \$1.11 a gallon.

The point is this: By automati-

*"Test of ribbon samples proved that cheaper brands actually cost more in the long run."*







*"Duplicating fluids were tested by putting measured amounts into glasses with pieces of roller."*

eally accepting the price on a low bid, we might be doing the right thing legally and politically, but we would just be throwing our money away. By purchasing quality materials at a higher price, we are getting more for our money.

Our experience with typewriter ribbons illustrates this principle. We had an opportunity to purchase any one of several dozen brands, ranging in price from just 36 cents to more than \$2. Rather than buy the cheapest ribbons automatically, we decided to test the different brands to see how well they wore.

To test the ribbons, we had a typewriter mechanic adjust one of our electric machines to type continuously on 12-inch ribbon samples. Each brand was run through the machine until it tore or failed to ink. We found that ribbons the district had been using, which cost us 39 cents for each 12-yard length, inked about 300 square inches before they tore.

To our surprise, we found that a brand we hadn't even considered, which cost \$1.98 for a 36-yard length, was still intact and readable after 1,560 square inches of type. *Both test samples, remember, were only 12 inches long.*

The test results were so positive that the district bought the \$1.98 brand. For five times the unit price of the cheaper brand, the district bought ribbons three times the

length, but they are 15 times as serviceable.

#### **Free samples**

We get about \$2,000 worth of free samples every year from manufacturers and distributors whose salesmen encourage us to compare their products with the competition. Sometimes the manufacturers or salesmen offer to test for us, but we usually do everything ourselves to insure impartiality. The time we spend is insignificant in relation to the money we save.

Recently our school board saved almost \$3,000 as the result of a test on liquid floor cleaners. This was to have been a routine purchase, but before bids were let, we requested sample containers of 15 brands for a quality comparison. A crew of custodians and their supervisor took the samples to one of our schools, marked off areas on a corridor floor, and applied the cleaners. A few minutes later we discovered that the brand we had been using was markedly inferior to more expensive ones.

Our former brand was a concentrate priced at 40 cents a gallon. It had a dilution ratio of 1:5, so it actually cost eight cents a gallon. A new concentrate which showed better results in the comparison test was priced at \$1.11, but it had a dilution ratio of 1:32—less than four cents a gallon.

Moreover, this product not only cleaned floors, but worked equally well on tile and wood.

We had been purchasing 21,000 gallons annually, for \$8,400. After the test, the board bought 5,000 gallons of the better product. Cost: \$5,550. Savings: \$2,850. The new brand was more effective, could be used for more jobs, required less storage space, and required less labor to apply since it did not have to be used as often.

#### **Everything tested**

After seeing what happened with the typewriter ribbons and the floor cleaner, we were convinced we were doing the right thing and began testing almost everything we purchased. We found that even minor items, like pencils, differed in quality. Most low-priced brands usually had warped or off-center leads which caused them to be eaten away in sharpeners. In quality brands, leads didn't snap and erasers did not pop out. Our records proved that expensive brands were the better buy.

Because our climate is harsh on painted exteriors, our district has always had difficulty maintaining the appearance of buildings. A few years ago the board retained a chemist to compound a special paint formula for us, but even this was unsatisfactory. Recently, because our quality testing program had been so effective, we decided to run a test on paints.

Samples of 12 brands were obtained. We selected schools with different exposures and painted both interiors and exteriors. In this comparison, we permitted the manufacturers themselves to supervise the test because of their qualification that the surfaces be prepared properly.

But to make sure the test was an ethical and fair comparison, the school board paid part of the labor costs and our maintenance staff



kept meticulous records on the time required for application, the number of coats required, how much paint was used, etc., for each brand. The test is still being conducted (now in its second year), but some of the paints have already begun to peel. It doesn't take long for quality to make itself known.

Another product tested was dishwashing compounds. Half a dozen brands were quality tested in our dishwashing machines and cafeteria sinks. We checked the amounts used, degree of irritation to skin, and cleanliness of the dishes. Finally, we inspected dishwashers for residue and damaging deposits.

When the test results were shown to the board, they didn't hesitate to buy a higher-priced brand which required smaller amounts to do a better job. Comparing our statistics, we figured a savings of \$5,317.40 on this one purchase.

Master stencils for duplicating machines are tested by taping strips of three samples together, then running the patchwork master on samples of various brands of paper. Liquids for the machines are tested by pouring measured amounts of various brands into large water glasses, then placing a section of machine roller in each glass. Evaporation rates are checked and the rollers are exam-

ined for deterioration. When all of the liquid has evaporated, the glasses are checked for residue.

We wanted to test pianos, too, but since this wasn't practical, we used an alternative for determining quality. The district music supervisor surveyed every piano we had and noted those which had rendered the best service with the least repairs. Five brands were recommended, and now our board will purchase only those makes. (In Florida, brand names may be specified in bids if at least three brands are mentioned.)

#### How to "shop" with bids

The staff in our purchasing department handles about 350 bid lettings every year. Since we purchase many items on a regular basis, we maintain a file of old bid specifications and a file of reports on products which we've already tested. When we write specifications on a repeat order, all we have to do is copy specifications, then fill in the quantity needed and the bid opening date.

The first step in a purchase is the filing of a requisition by a school principal or department head. Brand names are not mentioned at this point. The requisition comes to the purchasing department where it is account coded and the budget balance verified. The catalog price is also checked to see if bids will be required. In our dis-

## TEN STEPS TO QUALITY PURCHASING

■ In Jacksonville, purchasing agent Walt White has developed 10 basic rules for seeing that his district gets the most for its money:

1. Ask for samples of every possible product. Study them. Compare them. If necessary, test them.

2. Conduct your tests with the personnel who will be using the item. They'll know a good product when they see one. They'll also recognize disadvantages that others might overlook. By taking an active part in the purchasing process, they'll be happier with their equipment and know how to use new products.

3. If at all possible, do not permit company representatives to be present at the tests. Sometimes they can't help boosting their product and criticizing their competitors.

4. Use a jury of school personnel to judge the results. Try to test each product so extensively that the verdict will be unanimous.

5. When purchasing any one product, take action before your inventory runs low. This will give you time to "shop." Standardize forms and procedures in every step of the purchasing process to reduce time between requisitioning and receipting for delivery.

6. The greatest friend of the purchasing agent is the salesman. Listen to his sales talk because he probably knows more about his product than anybody else.

7. Then listen to his competitor.

8. Keep extensive records on prices, performance, delivery and repair service.

9. Stay abreast of new developments. Tell salesmen to put your name on mailing lists for information about new products. Keep a complete file of trade publications and catalogs.

10. If you don't buy the lowest bid brands, have the facts and figures to support your other recommendations.

*"We're still testing paint samples—12 brands—but it doesn't take long for quality to show up. Some brands peeled after one year."*





strict, school board policy is that purchases of more than \$300 require competitive bids.

Unfortunately, people who need supplies are likely to wait until the last minute to submit their requisitions. To prevent hurried purchasing and to give us time to test products, if that becomes necessary, we send monthly financial statements to each supervisor and principal. Each statement shows the budget balance and urges the submission of requisitions before supplies run low.

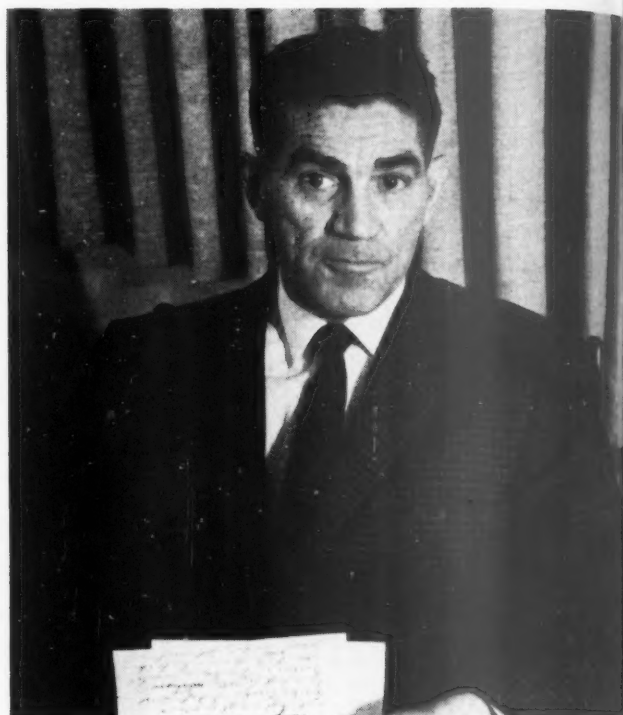
When we write the specifications, we often get the advice of the supervisor whose personnel will be using the product. For big purchases, like bulldozers and lathes, we arrange for demonstrations of models so the eventual operator can make his recommendations to the school board.

If bids are necessary, specifications are sent to every supplier on the prepared bid list. Even more time can be saved if we let bids on similar items simultaneously. Sealed bids are delivered to the superintendent's office. At the opening hour, salesmen come in to hear the quotations. The purchasing department supervises the opening and supplies each representative with a tabulated list of bids. Contracts aren't signed until bids are approved by the board.

#### **Tie bids**

Tie bids are always a headache for us. In most cases, we give the contract to the company that has been low on other items. Sometimes we simply renew the contract with our former supplier for that product until the competitor lowers his price. One year the board let bids for bread for the cafeterias on a monthly basis until the tie bids ceased.

Another way to break tie bids is to look for trade-in value. Last year, for instance, the price on new typewriters in Jacksonville wouldn't budge. All bids came in at the same price. We solved the problem by rounding up some old typewriters for trade-ins, and one firm used the trade-ins as justification to drop its price almost 40%. The district bought 80 machines and saved \$5,680. **End**



## A merit pay plan

■ ■ ■ Consult any authority on merit pay and the advice you'll get is, "Take your time, get your teachers involved, develop an objective evaluation instrument, work out criteria for merit, train your evaluators," and so forth.

That might be sage advice for a large district with a well-equipped administrative staff and capable supervisors. But for smaller districts, the problems of merit are so overwhelming, a busy superintendent would be sorely tempted to chuck the whole thing over, if the teachers didn't reject it first.

Nevertheless, there *is* a way small districts can have a merit plan—assuming the money is available. We have a plan in Schodack. Every year I select teachers whom I think deserve merit pay. The school board ac-

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**Mr. Davis** is Supervising Principal in the Schodack Central School District, Castleton-on-Hudson, N.Y. The district has two schools with a total enrollment of 1,095. There are 56 teachers.



You don't need a cumbersome appraisal instrument, a complex point system and a sliding salary scale, says this administrator of a small district. Any honest schoolman can handle all of merit's requirements himself. Here's his candid report on a one-man merit plan that works.

By LARRY DAVIS

*Schodack Central School District  
Castleton-on-Hudson, N. Y.*

## for smaller school districts

cepts or rejects my recommendations. That's all there is to it. This plan requires no "years of study" to implement, no point system, no elaborate evaluation instrument with lengthy criteria. All it needs is an administrator with a sense of values, a person who is fair and honest with his faculty, and who recognizes teaching talent when he sees it.

There is one catch. Teachers won't go along with the idea unless they have confidence in their evaluator's judgment, which is entirely subjective.

Despite its lack of objectivity, our plan has been working for almost three years without a single complaint. In a small district, the administration is in constant contact with the faculty. As supervising principal, I am also the business manager and the principal of the high school. I see most teachers every day, and they feel that I know them well enough to be aware of their talents and their shortcomings.

Although our salary scale has

always been competitive with neighboring districts, a few years ago our school board recognized a basic principle—a sort of Gresham's law\* for teachers: poor teachers will drive out good teachers, unless the latter are well paid. We felt it was absolutely necessary to reward those teachers who were doing an outstanding job. We also wanted to attract better teachers, many of whom won't even consider employment in a small district unless you offer them some bonus or incentive. We could have offered them medals and honors, but teachers don't want medals—they want the money they deserve.

Consequently, we spent about a year gathering and studying information about incentive pay, evaluative criteria, etc. A plan was recommended, but the faculty voted it down, discarding every-

\* Sir Thomas Gresham, an English financier, believed that when two coins were equal in denomination but unequal in intrinsic value, the least valuable coin would remain in use and the other would not.

thing the "experts" thought we needed. Our teachers felt the evaluation procedures were too difficult to endure and too cumbersome for a small district to administer.

A better plan, they said, was for the supervising principal to do all the evaluating himself, the evaluation to be based on day-to-day experiences. The opinion was that since students, parents, even teachers themselves, know who the best instructors are, certainly the supervising principal ought to know.

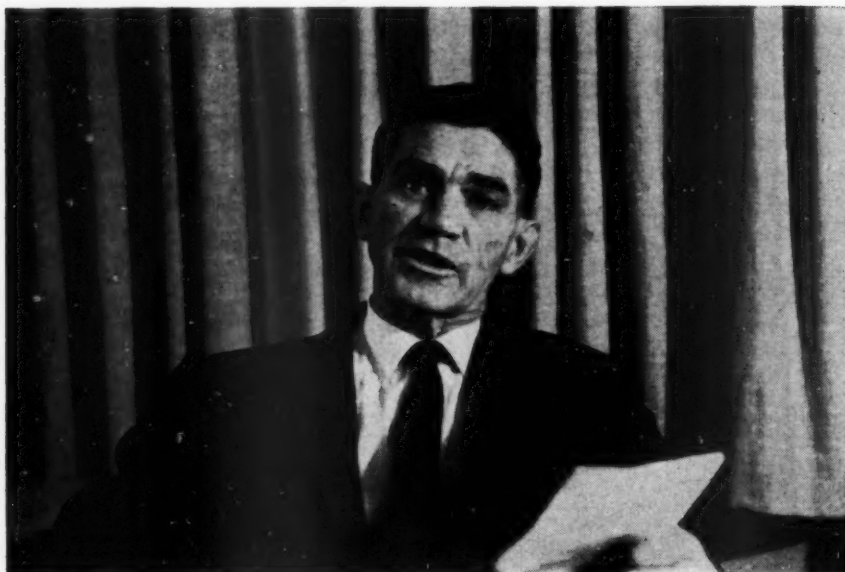
### Salaries

The merit schedule we finally adopted is one that can easily be administered by one man. It is based on a salary scale ranging from \$4,800 for a B.A. with no experience, to \$7,200 for an M.A. with 12 years' experience. A teacher automatically advances one step every year. Tenure is granted after three years.

To be eligible for merit, a teacher must be on or above step



*"I see my teachers daily. I know them so well  
I don't need a 'system' to award merit pay."*



four on the salary scale, and must have been teaching in this district for at least one year. Tenure is not a requisite. For example, a teacher with six years' experience in another district is eligible for merit pay one year after coming to Schodack.

The money is awarded in \$300 increments. Up to three increments may be granted, and a teacher may receive three increments in three successive years if I recommend it and the board accepts it. Once awarded, a teacher receives merit pay every year until I recommend withdrawal and the board approves.

In other words, it is possible for a teacher to earn as much as \$8,100—\$7,200 if he has an M.A. and 12 years' experience, plus up to \$900 of merit pay. In addition, there are two super-maximum steps which may be attained after completing courses of study for "professional growth."

#### Evaluation

My personal criteria of evaluation are basic. The teacher has to be superior. He has to love to work with kids and he must not be a member of the three o'clock quitting club. That's all. I don't

give a darn what a teacher does in the community. I didn't hire him to be a civic club leader and I won't pay him for it. But I did hire him to stay after school, if necessary, and I'll pay him for that.

How do I know a teacher is doing a good job? Like most administrators in a small district, I can't afford to spend much time visiting classrooms and observing. But I do move around in a school and I'm fortunate in that the acoustics in our classes aren't too good. I can stand in the corridor outside a classroom for a few minutes and hear what's going on inside. The teacher can see me and knows I'm there. I'm not hiding. In those few minutes I can observe undisturbed conditions inside. All the teachers accept this "eavesdropping" as normal.

I also get other information that helps me judge a teacher's capabilities. I hear from parents. I talk to students. In my position I see teachers all day long, and I know what they think of each other. Our district is not blessed with supervisors, so there are no intermediaries and I'm in constant touch with the faculty. It's just a matter of keeping my eyes open and my ears tuned to the ground. I

don't keep a dossier on each teacher, because when I prepare my recommendations on merit for the board, the really superior teachers have been impressive enough for me to remember.

Many superintendents have questioned this method of evaluation. My critics say that I can be influenced by negative personal judgments of other teachers, parents, etc. Naturally, I listen to opinions about our teachers, for this is one way to get the information I need. But I have made it clear to everyone involved that I will not tolerate personal grudges, and I don't.

In actual practice, the plan is a functioning model of simplicity. Every year I choose several teachers who have done an outstanding job and submit their names to the school board with individual letters of recommendation. When selecting the teachers, I do not restrict myself to a percentage of the faculty. Thus, it is possible for every teacher to win merit pay.

About 40% of our teachers are now getting the merit increments. Those who aren't are broadminded enough to realize that they are not the best teachers we have. They are doing a good job, and I tell them so, but they accept the fact that other teachers are doing a superior job.

So far, all our teachers feel they are getting a fair shake. If there is an occasion for complaint, a teacher who feels that he deserves a recommendation is entitled to take his case to the board.

There have been some constructive suggestions for change. One teacher asked that the board consider hiring an outside evaluator to insure objective appraisal. But other teachers and the board felt this wasn't necessary for three reasons. First, an outside evaluator couldn't possibly learn everything he'd need to know about our teachers in a matter of weeks, or even a semester. Second, the expense for an evaluator and staff would be too costly. And third, there's no guarantee that an outside evaluator would do a more effective job than the one we're doing now.

**End**



A SCHOOLMAN'S GUIDE TO

# TEACHING MACHINES

PART

# 1

What  
they  
are

PART

# 2

How  
to  
use  
them

PART

# 3

Where  
to  
get  
them



## TEACHING MACHINES

# 1

## What they are

**Editor's note:** At a recent symposium on teaching machines, sponsored by the American Management Association, a SCHOOL MANAGEMENT editor spoke with three of the leading, recognized experts in the field of programmed instruction—teaching machines. *Each of the three expressed points of view completely in opposition to those of the other two.*

The following article was prepared on the basis of all the information available to the editors of SCHOOL MANAGEMENT at the time of writing. It does not purport to be the last word on teaching machines. It contains many "facts" and opinions with which both proponents and opponents of teaching machines would disagree. It is presented in the belief that it will give our readers a great deal of basic information on the subject, answer some of their most immediate questions and help them to raise many others when they come into contact with those who can properly be considered "experts."

■ ■ ■ Imagine a large high school classroom in which 60 students are seated and busily at work. No one is talking; there are no recitations or discussions. Each student is preoccupied with a small machine on the desk in front of him. He reads a few lines of text in a panel of the machine, writes a few numbers in another panel, gestures, reads again. He repeats this cycle over and over throughout the entire period. The teacher, meanwhile, strolls around the classroom, looking occasionally over a student's shoulder and perhaps conferring with him briefly.

The class has met in exactly this way every day since the year began. It will meet this way every day until the year ends.

Notice that you *don't* see a second teacher. There would have been one, of course, if the class had met in the traditional manner—as two groups of 30. As a matter of fact, there *was* a second teacher the previous year. Now he's gone, "replaced" by the machines.

This is a 10th-grade class in mathematics. When the year is over, the students will have made excellent progress in algebra and trigonometry. What price they will have paid for it, in interest and maturity, no one knows. That will be argued for years to come. . . .

A fantasy? Not on your life. Something very much like this is happening right now in isolated classrooms across the nation. Here's how *The Salt Lake City Tribune* reported one instance last July:

*The first Utah teacher already has been shouldered aside by a machine.*

*He is a mathematics teacher at Weber County High School, and Supt. T. H. Bell last week assigned him to a junior high school next fall.*

*His place at Weber will be taken by [an] automated teaching machine and the materials it uses.*

*Using 60 [of these machines], one teacher can handle six classes of 60 students each, or 360 students a day in Algebra 2 and Trigonometry, Supt. Bell said.*

*Each of the two high schools in the district . . . will be equipped next fall with 120 of the machines, and two teachers [in each school] will thus be able to handle up to 720 students daily. . . .*

Utah today; but tomorrow the same thing may be happening in your own state, your own county, your own schools. For the pressures that have made teaching machines a center of hope, fear and controversy are at work in your community. You know these pres-



tures all too well: more students, who face an ever tighter competition for jobs and college admissions; a desperate shortage of well qualified teachers; and rising school costs, with the breaking-point for local taxation almost in sight.

Teaching machines have been hailed as a quick and honorable solution to these pressures. They have also been scorned as impractical—and damned as a threat to democratic education. But what are the facts? Does this new “technology of education” really offer a solution? What are its limitations? What does it mean for your community and your schools?

### Clearing the air

In the last few years, a number of misconceptions have gathered like fog around the subject of teaching machines and programed instruction, obscuring even the simplest facts. Before we go too far, let's clear away the most dangerous of these false impressions.

■ Teaching machines are *not* mysterious. They are simple to operate, simple in design. And the programed instruction they carry is based on a few very simple principles. You needn't be a psychologist or an engineer to understand them.

■ The principles on which programed instruction is based are *not* proved facts. Some eminent psychologists feel sure that they know how learning takes place in the human mind, and all the present work in programed instruction is grounded on their firm convictions. But these convictions are theories, not facts.

Laboratory experiments have been, and are being, conducted to test these theories; but in many cases, researchers are not yet certain *what* they should test. The most urgent concern of many distinguished scientists in the field today is to identify specific problems for *future* research. After these problems have been determined, the research can be carried out. Then, perhaps, the design of programed instruction will be on more solid ground.

■ The effectiveness of programed instruction in a classroom has *not* been proved. Teaching machines and their materials have been tested on students in laboratory experiments and in a handful of college classes. Almost no such testing has been done in realistic conditions in elementary or secondary schools.

Some of the claims made for programed instruction have been tentatively proved in these limited conditions. Students using the machines have learned traditional subject matter much more quickly than they might have in a regular classroom, very often in half the usual time. They remember what they have learned for a longer period of time. Whether they achieved the same *depth* of understanding remains, at present, open to doubt.

Many other claims, though often stated as facts, are simply hopes which may or may not prove true. A blunt warning has been offered by Dr. J. H. Kanner, specialist on teaching aids for the armed services. Those who would have us adopt programed instruc-

tion, says Dr. Kanner, “have issued many promissory notes . . . , but adequate evidence does not now exist to back up these claims. . . . The area of automated teaching devices is one where skepticism should prevail until more evidence and experience have been accumulated.”

■ Finally, teaching machines are machines, *not* people.

The notion of having our children go to school to learn from machines fills most of us with an instinctive (though perhaps unreasonable) uneasiness. To reassure us, many advocates of programed instruction have come to talk of the machines as almost human—as patient, always attentive tutors who will guide our children to knowledge with never a frown or a harsh word.

This is, of course, silly. The machines have no individuality, no sense of humor. They have no interest in the students or in what they are teaching. They have no enthusiasm; they can't learn anything new; they can never admit to being wrong. If they *were* human, they would not be the sort of peo-

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## PROGRAMS AND MACHINES

### PROGRAMED INSTRUCTION

*is a method of presenting information in a series of very small steps, beginning quite simply and gradually becoming more difficult. The steps are arranged so that any student can follow them by his own efforts, generally without a teacher's help.*

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### A PROGRAM

*is a chunk of programed instruction which conveys information for a particular lesson, unit or course.*

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### A TEACHING MACHINE

*is any kind of device whatsoever that presents a program.*

*A teaching machine may be a book or a set of file cards. It may be a simple mechanical device; it may be electromechanical or electronic. It may present the information visually or audio-visually; it may communicate with the student through any or all of his five senses. So long as it presents a program, it is a teaching machine.*

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ple most of us would choose to educate our children.

We had best think of them as what they are, nonhuman devices with very important uses—and very important limitations.

### The machines themselves

**Programed instruction** is a method of presenting information in a series of very small steps, beginning quite simply and gradually becoming more difficult. The steps are arranged so that any student can follow them by his own efforts, generally without a teacher's help.

A **program** is a chunk of programed instruction which conveys information for a particular lesson, unit or course.

A **teaching machine** is any kind of device whatsoever that presents a program.

A teaching machine may be a book or a set of file cards. It may be a simple mechanical device; it may be electromechanical or electronic. It may present the information visually or audio-visually; it may communicate with the student through any or all of his five senses. So long as it presents a program, it is a teaching machine.

The machines now available range in price from as little as \$2 to as much as \$5,000 and more. Most fall within a narrower range, between \$10 and \$1,000. There is no certainty that any machine now on the market will meet your school's needs in the long run, for this depends on the programs that are developed, not on the ma-

chines. If any of the present machines are successful, their prices may or may not be reduced through mass production.

The program materials, incidentally, are not included in the price of the machines. They cost extra, and it is difficult to say now how their prices will trend in the years to come.

*Confusing? Perhaps an analogy will be more helpful. Let's say you've just come home from a vacation during which you took a lot of color photographs. The films have been processed and made into slides. Before you have a showing for your friends, you'll want to choose the best slides and arrange them in a sensible order. You'll also have to buy a slide projector; but it can be of almost any size or shape, depending on how you plan to use it. The machine is necessary, but the slides are the main thing.*

Choosing a teaching machine is only slightly more complicated. Here, along with showing the individual steps (or "frames"), you must give the student a chance to respond. Do you want him to write his answers, speak them, choose them by pushing buttons? To decide this and various other factors, you must know *what* you want to teach and *how* the student can best learn it. Some form of teaching machine will be necessary, but the program must be designed first—and the machine chosen to fit it.

If programed instruction comes to play a significant role in your schools, you will almost certainly

need several different types of machines to handle the varying programs needed for different subjects—and for different units within each subject. A general-purpose machine may someday be produced; researchers talk of this wistfully among themselves. But no such machine is now available.

As a general rule then (and it is impossible to be more precise), a teaching machine works this way:

1. It reveals a single frame—that is, a block of material for the student to study. The theme may be two lines of text or 20; it may include sound, illustrations or motion pictures. Whatever its form, it ends with a question, an exercise or a problem: something the student must answer.

2. Whenever the student feels ready, he responds with an answer, indicating it in whatever way the machine directs. (Some machines can force the student to answer within a limited time—for example, by covering the frame after a given number of seconds has elapsed—but this is rarely done.)

3. The machine then—usually, but not always—reports to the student whether or not his answer was correct. After which, it turns immediately to the next frame.

The student, working at his own pace, repeats this three-part cycle indefinitely until he has mastered the material. Bright students must go through all the plodding steps, but they can finish most programs quickly without being held back

## DOES YOUR DISTRICT OFFER THESE SUBJECTS?

What subjects can be taught effectively, in part or in whole, by programed instruction?

No one knows yet—but a straw in the wind is a tabulation of teaching machine programs in a bulletin issued by Temple University last May. The list includes programs for schools, colleges, industry and adult education—programs that are available, restricted or still being developed. Not all the available programs are of proved high quality, and not all programs being developed will be successful. Still, the list suggests which way the programming wind is blowing.

The Temple University bulletin lists over 130 separate programs in 55 subject areas, including:

Algebra	French	Psychology	Trigonometry
Arithmetic	Geometry	Reading	Vocabulary Development
Bookkeeping	German	Russian	and a "proverbial" pro-
Calculus	Latin	Science	gram in Number Concepts
Chemistry	Logarithms	Slide Rule	and Symbolism
Economics	Mathematics	Spanish	
Electricity	Music	Spelling	
English	Photography	Statistics	
Equations	Physics	Time Telling	



by slower learners. Less able students are not harried into keeping up with the class.

The teacher can keep track of each student's progress, simply by looking over his shoulder to see how far he's come. In addition, the machine will often record each student's performance: his answer to each frame, his number of errors (even when the student himself isn't told) and the amount of time elapsed between frames. It may even identify the types of error the student tends to make most often. The teacher, who need not worry about correcting all these programmed tests, has time to plan and give remedial lessons, some by new programs, some in personal conferences.

The teacher is also partly freed from the harassing routines of make-up assignments. A student who has been ill can catch up on his programmed instruction entirely by himself. He need only go to the machine, feed in his program, review the early frames to refresh his memory—and then pick up where he left off.

### Some representative machines

To see this general pattern of the teaching machine more clearly, let's consider five representative devices. All have been used—at least experimentally—for classroom instruction, and variants of all five are now on the market.

The first device is simply a book. It can be set up in either of two ways, as a "programed text" or a "scrambled book." Both work essentially the same way. On each page—or part of a page—is a frame with some text and a question. The student answers and then turns to another page, where he finds the next frame—and possibly the correct answer to the preceding frame. (You'll sample both the programed text and the scrambled book later in this article, when we look into the basic principles of programing.)

Nearly as simple is a machine with several sliding bars in front and two openings on top. In a large opening, the frame appears. By sliding the bars, the student can make any combination of letters or numbers appear in the smaller opening. When he feels he has constructed the right answer, he



turns a small crank at the side of the machine. The position of the bars acts somewhat like the grooves of a key: if the answer is correct, the crank will turn, and a new frame will appear. If not, the student must try again.

The other three devices are more complicated. One is a large screen on which frames are projected from microfilm rolls inside the machine. To answer the question in each frame, the student pushes one of a row of buttons at the side. The next frame then appears.

Sight and sound are used together in the fourth device. The student wears earphones; and while a visual frame is projected on a screen; at the front of the machine, he hears a voice offering some explanatory comment. To answer the question, he presses a button. If he is wrong, a yellow light flashes on. When he eventually presses the right button, the voice offers its approval, and the next audio-visual frame appears.

The fifth device is the most intricate, but it has some obvious advantages, especially for the teaching of foreign languages. It also is audio-visual. A picture is shown on the screen through the earphones, a voice speaks about the picture in a foreign tongue. When it stops, the student either repeats a phrase he has just heard

or else answers—in the foreign language—a question he has been asked. When he finishes, the tape backs up and replays. He hears again the instruction, his own voice and then the taped voice speaking the correct answer. Then the next frame appears.

These five machines are by no means typical of all the teaching machines now commercially available, but they do indicate the range of possibilities for practical teaching machines. All five are based on the three-part cycle: frame, response, evaluation. Beyond that, as you see, they are very different.

### What they can teach

Because teaching machines are machines, and because they must work on the three-part cycle, the material they can cover is limited by certain very strict rules. Here are the most important of these rules:

■ **Programed instruction can only teach information.** Every frame must deal with specific information. When a general concept is taught, it is taught as a piece of information, just as an arithmetic program might teach that  $2 + 2 = 4$ . The machine cannot work in any other way.

As the student works through a program, he deals with the information that is presented. As he does so, he learns certain proce-



dures for handling such data—for example, how to solve *any* quadratic equation, not just those incorporated in the program. But these procedures, like the information, are learned as facts. The student is not encouraged, or permitted, to look for alternate ways of handling the material.

Since programed instruction can teach only information, it is wholly dependent on logic. It can operate to some extent in nearly every subject area, but not in those units which depend primarily on attitudes, imagination or sensitivity. A program can easily help a student to memorize a poem, but not to “feel” it or enjoy it.

■ **Programed instruction must always be taught in steps.** The whole body of material that the student is to learn must be broken down into what Norman A. Crowder, director of the educational science division of U.S. Industries, has called “a sequence of orderly and logical deductions and resolutions.” In other words, a program moves along a single track: A is true, therefore B is true, therefore C is true . . . and so on.

This makes for some difficulties. First, it makes impossible the “leap of understanding” which is the highest kind of learning. With programed instruction, a student cannot let himself be steeped in a subject, even with some confusion, until everything suddenly “clicks.” He must follow every step logically; the machine will not let him proceed unless he does.

Again, many subjects have no single track. History is one of the best examples: the interrelationships among events, movements, personalities and conditions are very subtle.

Finally, teaching by small steps means that information can be presented only in detail. A program cannot offer a quick survey of the essentials of a subject, leaving some gaps and ambiguities. An English teacher could not use programed instruction, for example, to give a smattering of information on Elizabethan England as a background for the study of one of Shakespeare's plays.

■ **Finally, programed instruction**

**must keep a single-minded concentration on its subject matter.** It cannot reach beyond its own focus of attention to show how the information it is teaching might be applied in other fields. It keeps learning locked into watertight compartments, and the student who wants to break through these compartments must do so without the machine's help.

What do these rules mean in practice? What subjects are appropriate for programed instruction? What probably are not?

These questions are the target of vigorous debates, and the only realistic answer is: no one knows the limits yet. One guideline, however, seems obvious:

*Programed instruction is appropriate when you are absolutely certain that you know exactly what the student should learn.*

The student will be active in the learning process but completely passive in relation to the material. He will learn it quickly and systematically. But he will never have an opportunity to question or challenge it. In programed instruction, the student must always do as he is told, and the programed material is always correct.

There are cases where this approach makes sense. In units of arithmetic, grammar and certain sciences, the student *must* learn a series of arbitrary facts and procedures. Quite a wide range of materials in other subjects has also been claimed as appropriate, though perhaps more difficult to program. Work in this field has been conservative; the boundaries are not yet in sight.

In the long run, of course, the boundaries will be drawn—but very flexibly, to suit each decision maker's temperament and insight. The more creatively one looks at a subject, the less appropriate it will seem for programed instruction. One expert, for example, has stated matter-of-factly that teaching machines can teach a student “to compose English prose.” If this means only instruction in correct grammar and punctuation, the programs can undoubtedly be written. But if composition includes questions of sense, style, taste and

distinction, the teaching can never be done by programed instruction alone.

### Writing a program

A teaching machine by itself is just an empty container. It takes on meaning only when the materials for programed instruction are fed into it. The program is what counts.

But what counts in a program? What sets a good program apart from a bad?

Lewis D. Eigen, vice president of The Center for Programed Instruction, has summed up the qualities of a good program this way: (1) It has valuable content—valuable in terms of the school's own philosophy and curriculum structure. (2) It has a healthy “philosophy of approach”—that is, it avoids rote learning and leads students to discover relationships for themselves. (3) It has good programing technique.

And what is “good programing technique”?

Instruction in a regular classroom is usually a collaboration between two men. One man has decided on the material to be covered during a given unit (or for the entire course) and has arranged it in a logical order. In short, he has written the textbook. The second man decides how much the students can reasonably absorb for each assignment. He checks to make certain that they understand what they have read; and when they do not, he works over the material with them. He lets them know individually how they are succeeding. (He also does a great many other things, which are not relevant here.) In short, he teaches the class.

The classroom teacher, in this situation, is not contributing much new in the way of subject matter. His task is, rather, to help the students master the textbook material by their own intellectual efforts. This is necessary because the textbook is sometimes difficult to understand—and because the student has no way of knowing whether or not he has grasped the information correctly.

In programed instruction, the



same material is presented, but in such a way that it is *never* difficult to understand. The method for accomplishing this is the basis of all programing techniques.

When a student encounters a block of new material in a regular textbook, he cannot take it all in at one gulp. Instead, he goes over and over the material, sorting it out into small pieces, each of which makes a kind of sense in its own right. Then he sets about memorizing the pieces. As he does so, he begins to recognize how each one "fits" with the others, so they gradually form a pattern in his mind.

This breakdown-and-synthesis is a basic process in what most of us call "thinking." But if the student has trouble carving out the small pieces and recognizing the relationships among them, he will be a slow learner. He may even fail.

Programed instruction eliminates this possibility by doing the student's hard thinking for him in advance. The programmer himself studies the block of material, separates it into small, logical pieces and feeds these to the student one at a time—always with strong clues to point out the relationships among them. As a result, the student can learn the surface information very quickly and with very few errors. Since all the breakdown and much of the synthesis is done for him, he would have to be a very slow learner indeed, to fail.

The material is also presented in such a way that the student nearly always knows, from the

program alone, when he has not grasped the information correctly. Depending on the type of program, he may be shown the correct answer to each frame-question immediately, or he may simply be shown the reason for his error. In either case, he will have one or more chances to answer correctly later in the program. He can never go for long with a mistaken idea in his head under the impression that it is correct.

Good programing technique, then, is the ability to separate the right material into the correct-size frames, to make each frame effective, to provide the right clues between frames, to arrange the frames in the proper sequence, to elicit the right kind of response from the student at the end of each frame, and to provide him with the right sort of evaluation.

Obviously, this is an immensely difficult procedure. It demands an acute knowledge of subject matter and of learning behavior, as well as great technical dexterity. Any given program may consist of thousands—often tens of thousands—of frames, each of which represents from a half-hour to an hour of concentrated work.

In its own way, a good program is not only an impressive technical accomplishment. It is also a work of art.

This fundamental procedure has been elaborated, in recent years, into two distinct programing methods: *fixed* (or straight-line) and *flexible* (or branching). Let's look very briefly at both of them.

### Fixed programing

Let's start with a sample.

Beginning on this page and continuing on the next, you will find the opening frames from "First Year High School Algebra," published by Encyclopaedia Britannica Films, Inc.\* The original is set up as a programed text—that is, a book in which the frames are revealed to the student one at a time. He reads each frame, writes down his response and then turns to the next page, where the answer and the next frame appear.

For mechanical reasons, this format cannot be duplicated here. To get the real flavor of a fixed program, therefore, you will need an extra sheet of paper and some will power. Here's how to use them:

1. *Without peeking, slip the paper under this page, so as to cover the following left-hand page.*

2. *Read the statement below and fill in the missing word. Write down your response, on this page or on a separate sheet. Just thinking it to yourself isn't enough.*

3. *Turn the page, and slide the paper down to the answer. If you were correct, slide the paper a little further to reveal the next frame, or question.*

4. *When you have written your responses to the second frame, slide the paper down to the next answer . . . and so on, until the text resumes. Remember: you must not look back at the earlier frames nor ahead at the frames to come.*

Ready? Here goes.

1. Any time there exists a quantity which has *direction*, there is always another quantity which is equal to the first one, but in the *opposite* direction. For example, a boy travels west two hundred miles. The opposite quantity is two hundred miles ..... (Write in the direction.)

\* Linear program sample reprinted by permission.



1. east

2. Direction is usually indicated by a symbol. The symbol is the first letter of the word meaning that direction. Hence, the symbol for East is E, while the symbol for North is .....

2. N

3. The symbol for South is .....

3. S

4. The symbol for West is .....

4. W

5. For each distance N, there is an opposite and equal distance South. The opposite of N 300 miles is S 300 miles. What is the opposite of S 250 miles?

5. N 250 miles

6. What is the opposite of N 35 miles?

6. S 35 miles

■ This type of programing received impetus from some pigeons who just happened to wander into Cambridge, Mass. There they were caught and put to work in the laboratory of Dr. B. F. Skinner, professor of psychology at Harvard University.

Dr. Skinner soon confirmed that, by offering the proper rewards at the proper times, he could train the pigeons to perform some "extremely complex" maneuvers, such as "playing a modified game of ping-pong." He accomplished this by offering them food whenever they accidentally moved as he wanted them to—and by *not* giving them food when they moved in any other way. In psychological terms, he "reinforced" the desired responses, and the pigeons "learned" the desired "repertoire of behavior."

Widening his studies, Dr. Skinner found that the reinforcement principle worked equally well with "rats, dogs, monkeys, human children, and . . . human psychotic subjects." He then turned his attention to the possibility of teaching regular school work by the same method. Slightly (but *only*

slightly) oversimplified, here is the theory he evolved:

Schools must forget their old-fashioned ideas of education as a process "designed to 'develop the mind' or to further some vague 'understanding.'" On the contrary, their proper function is to condition children to behave in a way that is generally considered intelligent. So long as a child can solve algebraic equations, for example, it is pointless to ask whether this ability "means" anything to him.

The most efficient way to teach behavior is by reinforcement. Let the student be forced to take many actions in relation to a given subject matter. Guide him so that he can always make the right response, and reward him every time he does so. For the pigeons, this reward was food. For students (as in the six frames you sampled above), the reward is the satisfaction of knowing you are right. Repeat this reinforcement often enough, and the student will learn to behave always in the desired manner.

From this theory has developed the fixed, or straight-line, program. The frames (as you saw) are short,

and the student is required to act frequently. He is never offered multiple-choice answers, but is forced to construct his own responses by recalling what he has already learned. If the program has been designed skillfully, he will always be right.

If he should make a mistake at some point, no matter. He sees immediately that he is wrong, and he will have several chances to respond correctly later, when the same material is repeated in slightly different contexts. Then he will get his satisfaction and his reinforcement. He will not be thwarted by continual failure into resenting the subject matter—and finally turning his back on it.

This, in bare outline, is the essence of fixed programing. As a general principle—and in terms of the goal it sets itself—there is little doubt that it works. But extensive research remains to be done before it is securely grounded on tested and proved facts. Here are four of the major areas of uncertainty:

The theory is based on reinforcement by constant success. In



## PART 1: TEACHING MACHINES

**Students read** microfilmed question, picks multiple choice answer; machine corrects response or moves on to the next frame.

practice, this appears to be inseparable from a constant threat of failure. Not just once during a class period, but with every frame, the student risks being told, "You're wrong!" Which of these elements makes the more lasting impression, the carrot or the stick?

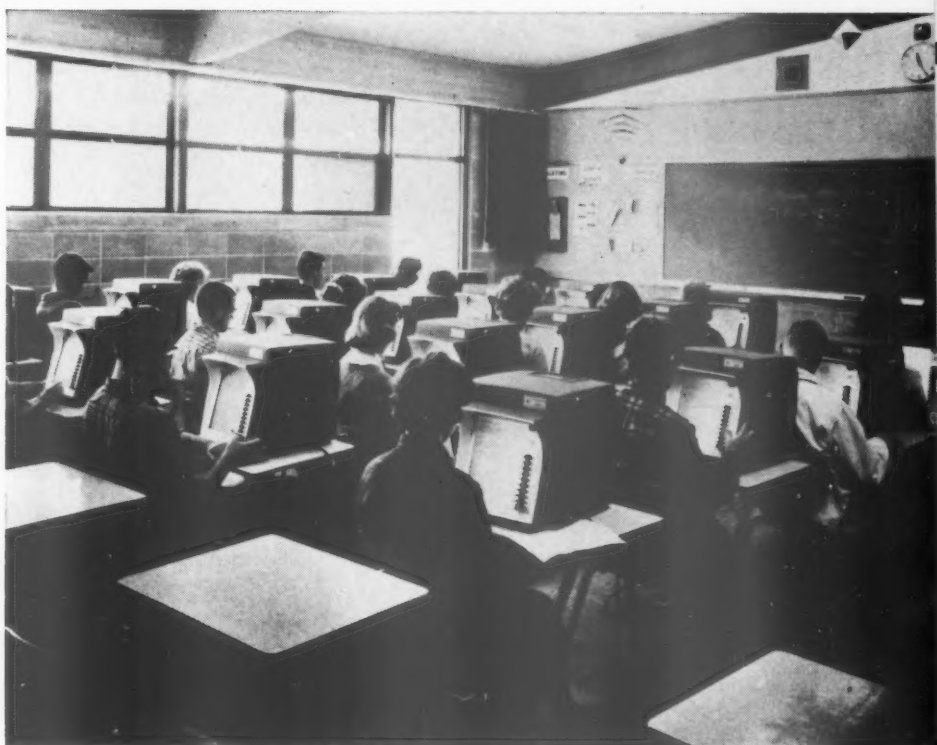
■ The theory assumes that responses are reinforced when the student knows he is successful. Douglas Porter, one of Dr. Skinner's closest collaborators, points out that it all depends on *how* the student is told of his success or failure—and that teaching machines cannot be used effectively until research is at least begun in this area.

■ The theory assumes that all students benefit from an immediate indication as to whether they are responding correctly or not. Ernest R. Hilgard, professor of psychology at Stanford University, suggests that people react differently: "With some kinds of tasks, high-anxious learners perform better if *not* reminded as to how well (or poorly) they are doing, while low-anxious learners do better if they are interrupted with comments on their progress."

■ Finally, the theory assumes that students can learn any desired behavior without ever being told why one response is right and another wrong. This is certainly true, to an important extent, but some legitimate doubt remains as to whether it is the *whole* truth.

### Flexible programming

In a *fixed* program, the sequence of frames is exactly the same for every student. Whether he answers frame 33 correctly or not, he turns next to frame 34.



In a *flexible* program, the student is given a choice of responses to each frame, and each choice leads him to a different point in the program. Thus, if four students were to make four different responses to frame 33, they would encounter four different frames at the next step.

Here again, let's get our bearings with a sample. The following is a brief section from a scrambled book on *Introduction to Computer*

*Numbering Systems* \* by Norman A. Crowder. Don't let the name scare you; this section is from a review of simple mathematics.

*The instructions are simple: choose your answer, and turn to the page indicated. Be sure to try all three answers, and see what happens each time.*

\* Branched program sample courtesy Western Design, Div. of U. S. Industries.

In the multiplication  $3 \times 4 = 12$ , the number 12 is called the *product*, and the numbers 3 and 4 are called :

Page 52 *quotients*

Page 98 *factors*

Page 72 *powers*



*Your answer on page 97 was: "factors."*

You are correct. The numbers that are multiplied together to form a product are called "factors."

[This frame then asks another question about factors and offers two answers, *Yes* and *No*. Each answer is keyed to a different page number, a different new frame.]

In some ways, flexible programming puts us back on more familiar ground. It *seems*, at least, to fall part-way between the dogmatic "reinforcement" theory and more traditional classroom practices.

Both kinds of program break material down into steps; but in flexible programming, the steps are fewer and longer. The challenge to the student is deliberately harder; he must concentrate more carefully to come up with the right answer. He receives frequent reinforcement, but this is not so important as in a fixed program. Most familiar of all, the flexible program explains things to the student. It treats him, in Mr. Crowder's words, "as an intelligent human being."

Both kinds of program follow the same three-phase cycle: a frame, a response, an evaluation, then a new frame. In a fixed program, the evaluation phase is critically important. The student must know his success or failure immediately if the reinforcement is to be effective. This evaluation-and-reinforcement is important in a flexible program, too, when the answer is correct.

When the student makes a mistake, however, the evaluation serves only as a means to an end. The writer of a flexible program is concerned not only to *block* an error tendency but also to *redirect* it. The program is designed to help the student recognize his error and correct it by thinking the material

through again from a different perspective.

In short, the flexible programmer looks at the cycle this way:

- Start with what the student already knows.
- Introduce some new information.
- Test the student to see what he knows *now*.
- Start again from there.

To test the student, flexible programming relies entirely on multiple-choice answers. This is a necessary evil—and the method's most obvious weakness. In the eyes of some critics, this weakness is so profound that it makes flexible programming virtually worthless.

In the sample question about factors, which you answered a moment ago, three choices were given—one right and two wrong. If the question had been put to 30 students and no choices had been provided, there might easily have been 10 or 15 different responses. To allow for so many possibilities at every step of a program is obviously impractical. Machine capacities are limited; and the more alternate frames provided at every step, the fewer steps the program can contain.

So the range of possible responses must be narrowed to those that are most reasonable. The selection itself is, of course, a check against other responses, for any response other than those offered

must be wrong. But two serious problems remain:

1. The student is not asked to *recall* what he has already learned. He need only recognize the answer when he sees it. There is good reason to believe that multiple-choice answers involve the student more shallowly and are less persistent in memory than freely constructed answers.

2. Multiple-choice answers inevitably put many wrong-but-plausible notions into the student's head. Eventually this creates confusion—and the necessity for *un-learning*.

Once the student has made his choice, however, the program's flexibility becomes apparent. The student's answer indicates fairly accurately how well he has understood the material presented up to that point. The program can start again from there in any of several ways:

The core of a flexible program is a straight sequence of frames in which the material is presented clearly and without repetition, except for an occasional review. If the student's response is correct, he is advanced directly to the next frame in this straight line. If his responses are all correct, he can complete the program swiftly, with no detours.

If the response is incorrect, he can be sent (as you have seen) to an appropriate sub-sequence, in which his error will be explained. For a simple error, this remedial sub-sequence may involve just one frame, which may or may not show the correct answer. In more troublesome cases, the student may be led through two or more frames, which will re-examine the material in closer detail and possibly test his understanding of it, one part at a time.

In either case, the remedial sub-sequence will eventually lead him back to the scene of his error. He can then try again—and he cannot progress along the main sequence until he has figured out the right answer.

If the response is incorrect, and if it suggests that the student has misunderstood some of the earlier



material, the program may not lead him into a sub-routine. Instead, it may return him to an earlier frame in the main sequence, thus forcing him to review certain material before he can progress to more advanced frames.

Finally—a boon to the bright student—the program may include in its main sequence a very hard question, which most students are expected to fail. Those who fail continue along on the main sequence, where they encounter the information they need to answer it. Those who answer correctly the first time are allowed to bypass the explanatory frames. They are directed immediately to new information several steps ahead.

These, then, are the teaching machines and the programmed instruction that gives them meaning. How promising—or threatening—are they? Only time will tell. For now, we can simply take note of some opinions that are being offered and some questions that are being asked.

The opinions, by and large, are concerned with the role of the classroom teacher in relation to the teaching machine. The questions, for the most part, are concerned with problems of educational philosophy.

Let's consider these in turn.

## The teacher's role

When teaching machines first caught the public eye a few years ago, sensationalism and rumor had a quick field-day. There was a flurry of reports that teachers would soon be replaced by the machines. Responsible men stepped in quickly, however, to spike the rumors. (Kenneth Komoski, now president of The Center for Programmed Instruction, observed tartly, "Any teacher who can be replaced by a machine deserves to be replaced.") In the end, the saner voices prevailed.

Today there is general agreement that teachers and teaching machines can co-exist. Beyond this, opinions are ranged in two camps:

■ **Teachers will serve the machines.** According to this view, the

teacher will be a "classroom administrator," who will supervise the students while the machines teach them. On occasion, the teacher may have to step in to handle questions or problems which the programmer has not foreseen. "In these cases," says Norman A. Crowder, "the teacher becomes an integral part of the programming." (See *"Teaching machines are a threat to teachers," SM, Dec. '60.*)

■ **Machines will serve the teachers.** According to this view—which seems, for the moment, to be the more popular—the teacher will use the machines for routine teaching of simple information. This will not only save valuable class time; it will also spare him from correcting workbooks and drills. He can thus put more effort into group discussions, conferences, lectures and curriculum development.

"A mathematics teacher," Messrs. Eigen and Komoski have written, "can walk into a classroom confident that the students already have learned the definitions and

preliminary concepts. His task is now one of pointing out the exciting interrelationships of these concepts and their relation to the world about us."

As master of the machines, the teacher might use them in various ways. He might assign all his programs early in the year and then take the class on to more advanced material. He might assign the programs at intervals, alternating them with depth study, discussions and enrichment. He might have no required programs but assign each student to a remedial program, if and when he seems to need it. He might even leave the programs for optional work, making them available to students for voluntary use in their spare time.

There need be no set formula. He could use the machines from day to day in whatever way he thinks best, just as he has used many other teaching aids in the years past.

## The outer limits

Programed instruction undoubtedly has its uses. We have not yet begun to see the limits of its possi-

**Machines expose question; students respond, uncover correct answers.**





bilities. We have, though, begun to suspect where these limits might occur.

In trying to estimate these outer limits, we find ourselves asking some very searching questions. Here are 10 of the most challenging.

■ At what point will the student find teaching machines boring? The excitement of playing with a new toy wears off after a while. If the student is forced to continue after he reaches this point, what will be the effect on his involvement? his motivation?

■ For the student, programed instruction is solitary work. What effect will these long hours of enforced isolation have on his awareness of himself—and on his social awareness?

■ In programed instruction, the student responds by writing a few words or numbers, or by pushing buttons. He gets no practice at all in communicating his ideas orally or in writing? Is this a serious loss?

■ Once a program is written and in use, it is very unlikely to be revised. How far can a school reasonably go in committing itself to permanently fixed units of subject matter?

■ Programs cannot cut across subject-matter lines. But to what extent is it possible to teach any subject well without relating it to other disciplines? If programed instruction were used extensively, would the student be able to gain a broad and unified education?

■ In programed instruction, the student cannot help to shape and give direction to the course. Is this a serious loss?

■ In programed instruction, the student has no experience of interacting with other students in a quest for learning. Is this a serious loss?

■ Insofar as his time is given over to a teaching machine, the student loses contact with his teacher. To what extent does education consist of absorbing information and behavioral skills? To what extent does it depend on the presence of a cultured adult, with a mature way of thinking and a genuine enthusiasm for learning?

■ Programed instruction creates in the student a passivity toward the material presented to him. He is taught to accept, not to question or challenge. Is this appropriate training for life in a democratic society?

■ What is the line between instruction and education? Should it be the school's purpose to teach only subject matter—or to instill, at the same time, a spirit and a way of life?

### First steps

If you are looking into the possibilities of programed instruction for *your* schools, let your watchword be: CAUTION—GO SLOW.

Read widely before you come to any decision, and be wary of relying too heavily on a few articles. Demand evidence from every author who makes a claim.

Bibliographies are available from many manufacturers of teaching machines (*see the guide which begins on page 104*) and from the Department of Audio-Visual Instruction, National Education Association, 1201 16th St. NW, Washington 6, D. C.

A bulletin on new developments is issued regularly by The Center for Programed Instruction, Inc., 365 West End Ave., New York 24, N. Y.

Some useful background and descriptive material will be found in the symposium, *New Teaching Aids for the American Classroom*, published by The Institute for Communication Research at Stanford University, Stanford, Calif.

A number of key technical papers have been gathered by A. A. Lumsdaine and Robert Glaser in *Teaching Machines and Programed Learning: A Source Book*, published by the Department of Audio-Visual Instruction of the NEA (address above).

Remember, throughout all your reading, that the field of programed instruction is new and that sectors of it are changing very rapidly. Don't accept *any* one report as final and definitive—including, of course, this one.

## TEACHING MACHINES

# 2

## How to use them



■ ■ ■ Teaching machines are here—and here to stay. They will be used, sooner or later, in your schools, as in every school in the nation.

The question that faces you now is not *whether* to use teaching machines but *how* to use them, and *how much*, and *when*.

Last month, SCHOOL MANAGEMENT fired these and other tough questions at P. Kenneth Komoski, one of the most knowledgeable and realistic authorities in the field. Mr. Komoski was formerly director of the Collegiate School Automated Teaching Project, which pioneered in testing programed instruction in elementary and secondary schools. He is now president of The Center for Programed Instruction, Inc., a nonprofit research and development group supported by the Carnegie Corporation.

His answers were always blunt and at times surprising. Here they are, drawn from the tape-recorded interview:

**Q. How can a school use teaching machines and programed instruction most effectively? What's the best way to use them?**

**A.** Nobody knows. Programed instruction developed out of a very experimental field, and it's *still* an experimental technique. Schools can't just turn to a programmer and ask, "How do we use this? What's the formula?" They have to find this out, to a certain extent, on their own. They have to work with programs and learn all they can about them, until they discover how to use them imaginatively.

**Q. What are the limits of programing? Is it possible, for example, to teach an entire course by programed instruction alone?**

**A.** I feel this would be a mistake. It would reflect a very naive understanding of education. Anyone who says he is programing the whole of anything has confused instruction with education. Instruction is extremely important, of course, but education is something broader and more complete. Among other things, it means finding out what the student can do with the subject matter he's being instructed in. And for this, the teacher is essential.

**Q. Then programs should cover units, not courses?**

**A.** Right.

**Q. In math, then, you might program the solution of quadratic equations—?**

**A.** Let me go further: you could program the *discovery* of the solution of quadratic equations.

**Q. Could you program English grammar and poetry?**

**A.** Grammar, yes. Poetry is more difficult. We're attempting now to program the analysis of poetry, teaching the student to listen to the images and metaphors, to appreciate the use of sounds. This will never take the place of a teacher who can impart a love for poetry, but it might help him to communicate a great deal more knowledge of poetry along with the enthusiasm.

**Q. Do programs allow for the fact that different students need to learn different things?**

**A.** Some programs do, and I think more and more will. But it also depends on how they're used. Suppose you're teaching reading in the elementary grades. If you're a good teacher, you know the particular needs of each student—one

is weak in phonetics, another is weak in another reading skill. You don't have the time you need for individual counseling. But if you had program material in various reading skills available, you could assign it individually. Then Johnny, who's having trouble with phonetics, would get a program on phonetics—and so on, around the class.

**Q. Let's back up a little. What is a teaching machine?**

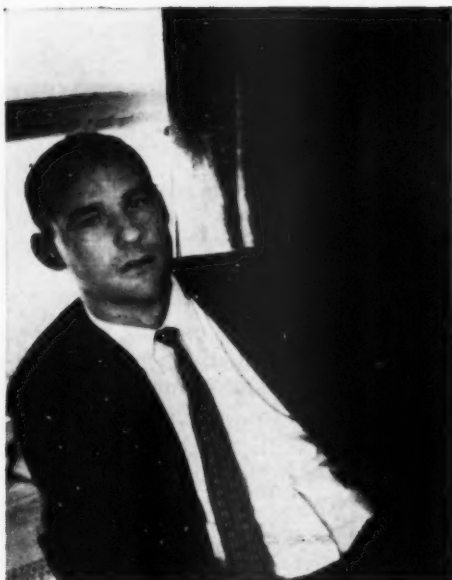
**A.** Here at the Center, we define a teaching machine as a device for presenting programs. Without a program, it's not a teaching machine. It's a piece of hardware. It might be used as a testing device; but unless it contains a program that is actually teaching, it's not a teaching machine.

**Q. Would a tape recorder be considered a teaching machine?**

**A.** Certainly, depending on how you program it. That's true of any-







**"Machines won't replace teachers. Schools must learn to use them imaginatively, to make better use of the human's time."**

thing from a book to the most sophisticated picture-sound device. The programing is the key. Incidentally, every study that has been made shows that a book—a programed text or a scrambled book—is just as effective as any other device, provided the program can be presented fully in book form.

**Q. What we're really talking about, then, is an approach to instruction?**

**A.** Right. Programed instruction is a revolution in the writing of instructional material. It's a way of systematically unifying all the media we have available—the printed word, sound, pictures, moving pictures, everything—into a workable system that can be used in a classroom for individual learning. Not that we should use all these media all the time. That would be placing method above subject matter. But the machines should be adaptable; it's ridiculous to build a machine that can use only one form of programing. We should be able to study the interaction between the student and a particular subject matter—and then draw on any and all methods that can facilitate learning in that situation.

**Q. What advantage does this new approach have over the usual classroom procedures—at least in those areas where programed instruction is desirable?**

**A.** It has three tremendous advantages. First, it never gets side-

tracked. It constantly asks the right questions and keeps building the student's knowledge. Second, it allows each student to go at his own pace. And third, it lets each child in the class know that he's on the right track in whatever he happens to be doing at each moment. Even the best teacher, working alone, would find it hard to accomplish these things. Programing makes them easy.

**Q. What effect will programed instruction have on the teacher's role? Is the teaching machine a threat?**

**A.** Yes, for the moment it *is* a threat. We all feel threatened by what we don't understand. This is what I refer to as the John Henry phenomenon: a lot of people are threatened by the teaching machine, just as John Henry was threatened by the steam drill. They don't understand it. They think it's going to replace them. But in fact, it's a tool that we can use to rid ourselves of routine work and to free our time for the kind of teaching that only human beings can do. The teaching machine doesn't replace the teacher. It replaces certain functions that he has been compelled to do, often with great reluctance, knowing that if these chores were out of the way, he could do a better job where it counts.

**Q. It saves the teacher's time. Does this mean that the school can operate with fewer teachers?**

**A.** I wouldn't say that it *saves*

time. I'd say that it makes more professional use, more human use, of the teacher's time.

**Q. Haven't there been experiments recently in which classes have taken an entire course by machine, without a teacher present?**

**A.** Yes, these experiments have taken place. But I think the publicity is very unfortunate. It's causing a great deal of unnecessary controversy. And I think it's a false controversy; because in the long run, I don't think you'll ever see any course or any subject matter turned over entirely to a machine. To cite just one simple reason: the teacher must be there to get the right program into the hands of the right student at the right time; to know when a child needs some work in a particular area, and when he's ready and waiting and willing; to have a sensitivity to the child that no teaching machine is ever going to have.

**Q. Would it be possible for a good teacher, when he finds an effective way to present a unit of material, to program that unit for his own classes?**

**A.** Theoretically, yes. In practice, probably not, because it would take even a skilled programmer hundreds or thousands of hours to write such a program. But let me add this categorically; I believe that if we're to see the full potential of this revolution, we ought to ask every teacher in the country to program at least one day's



## PART 2: TEACHING MACHINES

teaching. For one thing, he would then understand what programming is about and what a difficult job it is. More important, he'd be able to take a fresh look at himself as a teacher. When you program something, you say, "This is the way I believe it ought to be taught." You set it down and try it—and you find it doesn't work for everybody. It works for the bright-eyed kids up in the front row; or it works for the slow kids but bores the bright ones. So you begin to adjust the program; and as you do, you find out more about your own method of teaching. Programming shows you, in a way that you could never learn otherwise, just what you're going to have to do in the future to adjust to individual differences.

**Q. What's the best way for a school system to get a taste of programmed instruction? How steep should the first commitment be?**

A. It's too early for any school system to adopt programmed instruction on any large scale. If a school is curious, it might take some of the commercial programs now available, use them on a lim-

ited basis and then ask itself, "Are these programs in line with what we really believe we ought to teach? Do they help us achieve what we want to achieve in our school, from the standpoint of content and of approach to curriculum?" There's no virtue in using programmed instruction unless it does the job you want done. At the same time, the school ought to evaluate the efficiency of the program, both by standardized tests and by special tests which the teacher can prepare. Every good program must define exactly what it's trying to teach. The teacher can test to see how well it succeeds.

**Q. Should a school try to write its own programs?**

A. Yes and no. Certainly it shouldn't try to write enough material for a field test in programmed instruction. On the other hand, if some of the staff members can learn what is involved in programming, they may become very discerning consumers of commercial material as a result. Eventually, of course, this situation might change. In the long run, if a school

depends entirely on commercially available material, it might find its curriculum stifled. But a school system that goes into a large-scale business of producing its own programs will have to make extensive adjustments in its curriculum development structure.

**Q. Is there a danger that schools may jump too fast—that they may turn over too much of their instruction to machines?**

A. I think there is somewhat of a danger here. No truly professional educator would be so reckless. But there might, for example, be taxpayers who work in a company that uses programmed instruction to handle certain training jobs. They might easily jump to the conclusion that teaching machines will solve all the schools' problems at a low cost. And they might put on pressure. The only way to mitigate this threat, if it really does exist, is to have the professional educators know the facts about programmed instruction. So long as they have the knowledge they need to reach a sound judgment, programmed instruction is going to be a success.



***"If a school depends entirely on commercial material, it may find its curriculum stifled."***

PLEASE TURN PAGE FOR PART 3 ►



## TEACHING MACHINES

# 3

Where  
to  
get  
them

■ ■ ■ Commercial firms are now entering the teaching machine field at the rate of two per week. One new noncommercial firm gets into the act every four weeks.

With this kind of tremendous growth, it is almost impossible for anyone—expert or layman—to keep up with all new developments in the field.

Making use of all available sources, the editors of *SCHOOL MANAGEMENT* sent a questionnaire last August to every manufacturer known, or thought, to be making a teaching machine or programs for such machines, and to be offering them for use in schools. (Some companies are working exclusively on industrial and governmental applications.)

On this and the following pages, every company that responded to that questionnaire—and that indicated that it, indeed, is producing teaching machines or programs for the schools—is listed, along with a brief description of what the company has available, how much it costs and where further information may be obtained. Companies are listed alphabetically, whether they provide machines, programs or both. Also listed are five companies still in the planning stages, whose materials are not yet available.

The term “teaching machines” is an obvious misnomer. Most of those in the field would prefer a title such as “auto-instructional devices” since any machine that can be used to teach is, by definition, a “teaching machine.”

Excluded from this listing are devices that might be classified as teaching machines, but which actually more properly are covered in other audio-visual subdivisions. Among these are movies, film-strips, slides and tape recorders. Also excluded from this section are conventional language laboratories, although there is a great likelihood that many of the latter will some day be turned into programmed teaching machines.

### ASTRA CORP.

31 Church St., New London, Conn.

#### Machines

An electromechanical device, designed particularly for drilling students on material that requires memory work, the Astra unit utilizes program cards. The student indicates his answer to multiple-choice questions with a stylus.

Cost: \$150. Available now.

#### Programs and Services

Current programs include primary and junior high school math and science.

### ATRONIC LEARNING SYSTEMS, DIV., GENERAL ATRONICS CORP.

One Bala Ave., Bala-Cynwyd, Pa.

#### Machines

The Atronic Tutor is a multiple-choice, all mechanical teaching machine. It is designed to hold a book in front of a viewing window. Each increment of the program is presented on a separate page, together with a multiple-choice question. The student answers the question by selecting one of four keys corresponding to the answer choices. The student cannot progress until he has gotten the right answer. A counter keeps track of the cumulative number of trials made by the student.

The Atronic Tag is a punch board unit for self-correcting answer sheets, designed for use with a reusable programmed text. The student selects his

answer choice by pressing a stylus through a paper form. A correct answer is indicated by a deep penetration of the stylus. An incorrect answer is indicated by a shallow penetration. The pattern of correct answer positions can be changed easily by replacing code plate.

Cost: Atronic Tutor, \$150; Tag, \$34.50.

#### Programs and Services

At present, Atronic is preparing only short programs, primarily for demonstration purposes. Major program efforts for schools are going through conventional publishers.

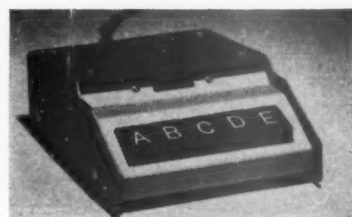
Consulting services are provided for the design and installation of incremental learning systems.

### CORRIGAN COMMUNICATIONS, INC.

2450 El Camino Real, Suite 200, Palo Alto, Calif.

#### Machines

This system is designed for group instruction with machines. It consists of four components: student console; in-





## PART: 3 TEACHING MACHINES

structor answer console; a logic center, which controls the entire system; and an IBM punch to record all student data. The teacher may use any means he chooses to present multiple-choice questions: the blackboard, mimeographed sheets, etc. Open and closed circuit television can also be used with this equipment.

The student console consists of five answer buttons. If the student chooses the correct answer, he will see the green light on his console register; if he chooses the incorrect answer, he will see a red light. Each student is required to respond until he receives the correct answer. However, it is the first response of each student that is reported to the logic center where it is retained in a memory cell which corresponds to each individual student's machine. At the conclusion of the time cycle selected by the instructor for that question, the information retained in the memory cell is discharged into the IBM Card Punch where data can be processed at a later time for individual student scores as well as class performance.

The instructor answer console also carries five buttons. The teacher depresses the correct answer button to signal the correct answer to each student console. As the students respond, the response meter on the instructor's console reports in percentages the correct responses being made by the group. Thus the instructor knows immediately how well the subject matter has been understood by his students.

Cost: About \$3,000 for entire classroom system for 24 students. Available immediately.

### Programs and Services

Corrigan Communications, Inc., will prepare custom programs for any grade level, offers workshops and consultation for school staffs.

### CRAIG RESEARCH, INC.

3410 S. La Cienega Blvd., Los Angeles 16, Calif.

### Machines

The Craig Reader is designed for use by individual students to increase reading

speed and improve comprehension. Reading training film slides are exposed on unit's viewing screen at a speed selected by student.

Cost: \$149. Available immediately.

### Programs and Services

Programs are available or being prepared for elementary through high school and college.

Cost per program, including film slides: \$39.50.

Services offered by Craig include test and survey data, exhibition and conference participation, professional guidance, curriculum designed materials and programming.

### DEVEREUX TEACHING AIDS

Box 717, Devon, Pa.

### Machines

Teaching machine is for use by individual student and is completely self-contained. Workbook containing approximately 20 pages sits on top of machine. Each page contains eight multiple-choice items. Student indicates his selection by depressing push-button immediately adjacent to the answer.

Cost: \$89.50. Available immediately.

### Programs and Services

Workbooks are available in elementary arithmetic with particular relevance to special education and remedial situations. Some remedial reading workbooks are available for experimental use. Average cost per workbook: \$1.50. They are reusable and two sets per classroom are said to be ample.

Devereux will furnish schools with sample devices and workbooks currently being evaluated without cost or obligation. Schools are required to submit informal reports and suggestions. Devices are available from school supply houses in several parts of the country.

### DICTAPHONE CORP.

730 Third Ave., New York 17.

### Machines

Classroom teacher can dictate lesson and prepare mimeographed answer or work sheets. Students put on headphones and work with answer or work sheets according to directions received through unit. In heterogeneous groups, teacher can dictate to three machines set at varying speeds for slow, average and fast learners. Dictated belts are reusable and could be circulated from class to class or from school to school. Cost: Averages \$25 or \$30 per student.

### Programs and Services

None available at present.

### ENCYCLOPAEDIA BRITANNICA FILMS, INC.

1150 Wilmette Ave., Wilmette, Ill.

### Machines

None.

### Programs and Services

Hard-cover, programed texts and plastic masking devices are available from EBF. For several of the math courses

which are offered, accompanying teachers' manuals are also supplied. Also, student supplements or workbooks are available with some of the courses. Seven math courses and four language courses are currently offered. They are geared to high school and college level, and prices range from \$7 through \$16.75 per course.

EBF consultants are available to schools for help in choosing appropriate programs.

### HRB-SINGER, INC.

Science Park, State College, Pa.

### Machines

For use as a teaching machine by individual students or as a test grading device by teachers, this unit supplies answer boards for multiple-choice, true-false and paired-comparison tests. Teacher must make up test to conform to a specific answer board. (A variety of answer boards are available so that students cannot memorize answer patterns.)

When utilized as teaching device, the student uses a stylus which is connected to electrical-mechanical counters. Test questions are on a paper next to device. Answer paper is placed on an answer board. The student selects a response and punches through the paper, contacting the board. If a correct response is made the correct counter records and a light signals; an incorrect response activates the incorrect counter and does not activate the light.

Cost: \$33.50—\$69.50.

### Programs and Services

Introductory algebra and plane geometry programs are available to illustrate the capabilities of the unit.

HRB-Singer, Inc. demonstrates the unit and will lend units to interested school districts for trial evaluation. Professional help is given in preparing programs for designing studies to evaluate machine's effectiveness.

### HAMILTON RESEARCH ASSOCIATES, INC.

4 Genesee St., New Hartford, N. Y.

### Machines

Two units, the Visitator Card Model 200 and a new machine now in production, display questions and correct answers on four- by six-inch cards synchronized with an 8½- by 11-inch answer sheet. The machine is actuated by a lever which first presents the new question then, on the return stroke, exposes the correct response while indexing the answer written by the student. Student





may compare response with the correct one given, but may not alter his initial response.

Cost: Visitator \$89.50; new machine, about \$23. Availability: Visitator, immediately; new machine, October 15.

#### Programs and Services

Only technical programs are available.

**HARCOURT, BRACE & WORLD, INC.,**  
DEPT. OF PROGRAMED INSTRUCTION  
750 Third Ave., New York 17.

#### Machines

None.

#### Programs and Services

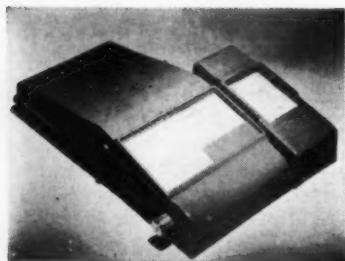
Department of Programed Instruction is currently at work on approximately 100 programed books and booklets for all levels, elementary school through college. Many will be available for tryout this fall; others should be ready by late 1962 and early 1963. Only programed text currently available is "English 2600" for high schools.

#### KONCEPT-O-GRAPH CORP.

179 Berkeley St., Rochester 7, N.Y.

#### Machines

The KOG-7 consists of two basic components: the program display assembly and a detachable answer unit. It was designed to utilize all linear program



material as well as paste-up, mimeographed, dittoed or printed programs prepared by the teachers. Since answers are not written on program sheets, the same programs can be reused. The detachable answer unit is magnetically connected to the main assembly. A roll of adding machine paper, which may be up to 3½ inches wide, is advanced by a mechanical coupling as the program itself advances.

Cost: \$39. Available immediately.

#### Programs and Services

Koncept-O-Graph offers segments in elementary science. TMI-Grolier programs can be used on this machine.

Koncept-O-Graph will lend machines and, in areas accessible to it, will send staff members to conduct lectures.

**NEW YORK INSTITUTE OF TECHNOLOGY**  
135 W. 70th St., New York 23.

#### Machines

Two machines present linear programs using a scroll type mechanism which allows a student to observe one segment

of the program at a time and forces him to compose his answers before exposing the next part of the program. One also contains a recording mechanism for the presentation of correlated audio material.

A third model incorporates information retrieval units, a controlling matrix which permits variable programs to be presented to the student via audio, TV or film. It also permits the student to talk to the instructor without disturbing other students. The machine also talks. When the student makes an answer, his choice activates an electronic brain which causes the machine to select its program based upon the student's need. Thus it could say to him: "You did very well . . . ." Or it might say: "Let's cover this in an entirely different manner." Cost: \$2 for the simplest, which is available now. The other two machines are not yet on the market but will cost about \$15 and \$1,200.

#### Programs and Services

Programs for schools will probably be available by mid-1962. Current programs are for college and adult levels.

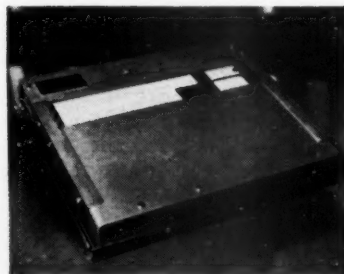
#### PROGRAMMED TEACHING AIDS, INC.

3810 S. Four Mile Run Drive, Arlington, Va.

#### Machines

The Foringer model 2002 is an automated teaching machine for presentation of written, pictorial or multiple-choice material requiring a written or drawn response. Roller action advances paper tape (can take six or 8½-inch widths) past a transparent plastic window. A separate answer tape advances the same distance.

The Ferster Tutor is a booksize teaching machine which operates in much the same way as the Foringer model.



Cost: Foringer, \$80; Ferster Tutor, \$5. Both are available immediately.

#### Programs and Services

Sample programs in spelling, psychology, French and algebra are available for loan with machines to interested schools.

#### RADIO CORPORATION OF AMERICA

Educational Services, Cherry Hill Training Center, Camden 8, N.J.

#### Machines

RCA is producing machines that use audio tape and 35 mm slides to teach

manual skills and science material primarily. These units are designed for individual use, though groups up to four can work together with the unit under certain conditions. The explanation for the accomplishment of a step in a laboratory experiment, for example, is demonstrated by the slide and explained by the audio tape. When the student feels he has mastered this step he actuates the unit with a foot lever and progresses to the next step, which may be a finished presentation of how that step of his operation should appear, or it may simply be the next step in the procedure.

Cost: From \$380 to \$500 including one program. Available immediately.

#### Programs and Services

Cost of additional programs varies according to type of program and the extent to which schools cooperate in setting it up. The firm will set up the complete program and also try to interest other schools in it in order to keep down the unit price to each school.

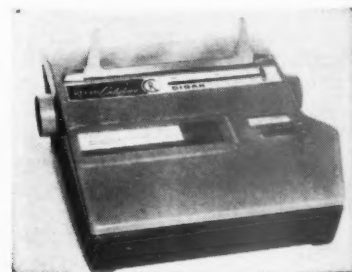
RCA will cooperate with schools by helping them plan and write custom programs; advising with regard to subjects that lend themselves to various forms of teaching machines; and making available writers, artists, narrators and photographers.

#### RHEEM MANUFACTURING CO.

400 Park Ave., New York 22.

#### Machines

Didak 501 features window for information and question, plus place for write-in answer. Program material is stored on fanfolded paper tapes; answers are writ-



ten on separate paper tape (three-inch adding machine tape can be used), permitting programs to be used several times.

Cost: \$157.50. Available now.

#### Programs and Services

Only experimental programs are available at present. However, teachers can prepare their own programs for the Didak 501 by typing program on standard size bond paper or on continuous fanfolded paper available from Rheem.

**SCIENCE RESEARCH ASSOCIATES, INC.**  
259 E. Erie St., Chicago 11.

#### Machines

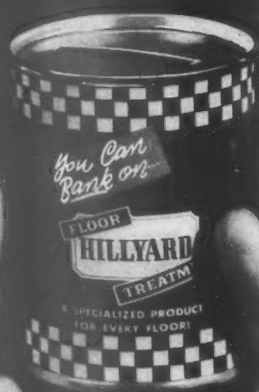
None currently available.

*continued on page 110*



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and on the other  
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durable floors



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prove to you that the best floor treatments not only give you  
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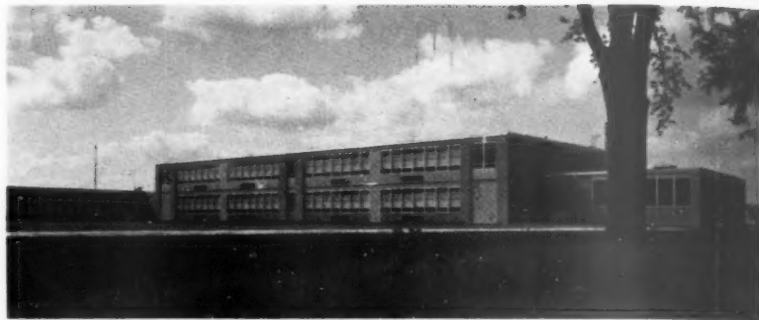
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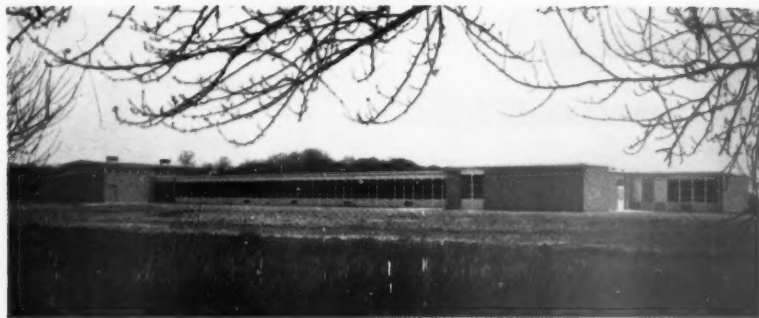
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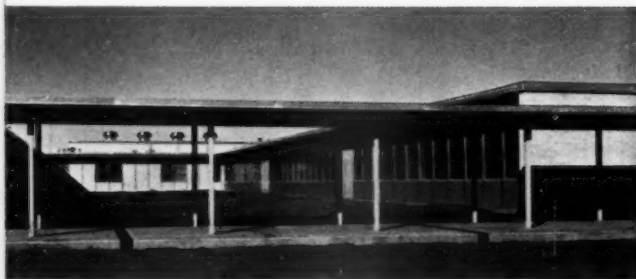
# Inside...outside...the colorful look of



Dearborn Township School, Wayne County, Mich.  
Architect—Bennett & Straight, Dearborn, Mich.



South Lyon Elementary School, South Lyon, Mich.  
Architect—W. T. Anicka & Associates, Ann Arbor, Mich.



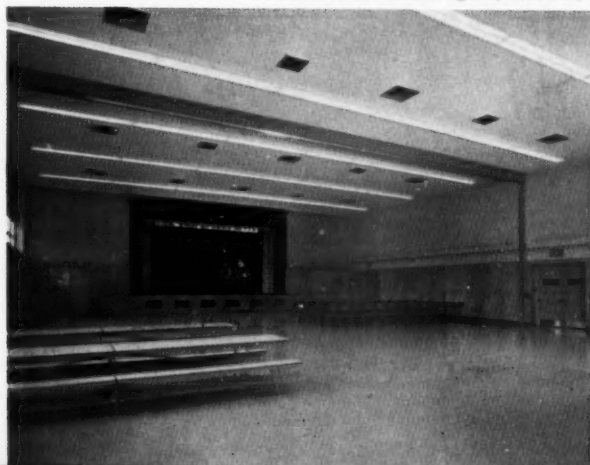
Ray M. Hatton Elementary School, Bridge City, Texas  
Architect—Goleman & Rolfe, Orange, Texas



New Intermediate School, Vestaburg, Mich.  
Architect—Warren Holmes Company, Lansing, Mich.



Central Elementary School, Warsaw, N. Y.  
Architect—Trevor Rogers, Buffalo, N. Y.





# ook of AmBridge Modular Construction

The architects who designed these schools all used AmBridge Modular Construction. Yet, each school has its own distinctive character because it was *individually* designed.

In a matter of a few months you can have a spacious, colorful new school designed to fit your needs *and* budget. AmBridge Modular School components are precision-fabricated *before* they reach the job site, so it takes only a handful of men to erect them. Think of the time and money *that* saves.

These distinctive schools will look just as bright and colorful years from now because baked enamel or vinyl interior partitions sparkle with an occasional wipe, and normal rainfall keeps the porcelainized exterior walls apple clean.

The steel walls are less than 3" thick, yet provide unexcelled sound control and better insulation than a conventional 12" wall plus plaster. And because walls are so much thinner, they provide about 5% more floor space compared to conventional construction.

There it is. Fast construction. More space. Competitive cost. Style. If you'd like to have more information, write for our 24-page booklet. American Bridge Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

*USS is a registered trademark*

General Offices: 525 William Penn Place, Pittsburgh, Pa. Contracting Offices in: AmBridge • Atlanta • Baltimore • Birmingham • Boston • Chicago • Cincinnati • Cleveland • Dallas • Denver • Detroit • Elmira • Gary • Harrisburg, Pa. • Houston • Los Angeles • Memphis • Minneapolis • New York • Orange, Texas • Philadelphia • Pittsburgh • Portland, Ore. • Roanoke • St. Louis • San Francisco • Trenton • United States Steel Export Company, New York.



This mark tells you a product is made of modern, dependable Steel.



**American Bridge  
Division of  
United States Steel**



Beaver Area Senior High School, Beaver, Pa.  
Architect—B. J. McCandless, Ellwood City, Pa.



#### Programs and Services

Programed texts in math and spelling are currently available.

A prepublication sample text and descriptive brochure will be sent on request.

#### TEACHING MATERIALS CORP., DIV. GRO-LIER, INC.

575 Lexington Ave., New York 22.

#### Machines

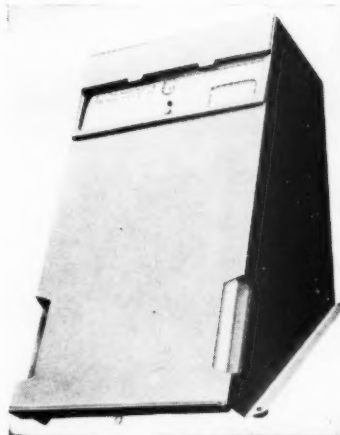
Designed for individual learning, the Min/Max unit exposes information and question and provides space for student to write an answer. Student then moves up frame to expose correct answer and, at the same time, the written answer moves under plastic window where it can be seen but not changed.

Cost: \$20. Available immediately.

TMI-Grolier is also working on several new teaching machines which will probably be available during the coming year.

#### Programs and Services

A variety of programs are available in languages, math, music and English,



and new programs are constantly being added. All TMI-Grolier programs are also available as programed texts. These programed courses utilize a mask instead of the Min/Max unit. Costs of programs, whether used with Min/Max or as programed text, range from \$7.50 to \$15 each.

School districts are encouraged to experiment with programs and teaching machines. Field representatives will assist school districts when needed. Descriptive literature on programed learning materials and teaching machines is provided upon request.

#### THOMPSON RAMO WOOLDRIDGE, INC., EDUCATION ELECTRONICS DIV.

532 Sylvan Ave., Englewood Cliffs, N.J.

#### Machines

Uses synchronized audio-visual devices for self-instruction, including films, filmstrips and magnetic tape. A smaller machine features synchronized sound and sight sheets, plus facility for reviewing. Cost: Estimated at \$8,000 for larger machine, \$200 for smaller. Both should be available late this fall.

#### Programs and Services

Foreign language and English programs, beginner through advanced levels, available with machines.

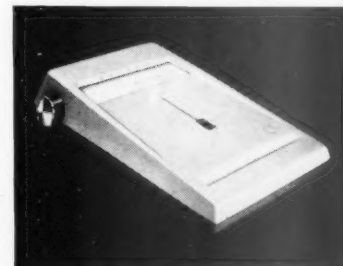
Qualified specialists in the field of programed instruction work with schools on a continuing basis.

#### UNIVERSAL ELECTRONICS LABORATORIES CORP.

510 Hudson St., Hackensack, N.J.

#### Machines

The Univox exposes frame of program material, provides for write-in of answer.



Unit is actuated by student; learning is individual and self-paced.

Cost: Not determined. Available later this month.

#### Programs and Services

A variety of programs are being prepared, particularly in the fields of languages, science, math and English.

Services offered by Universal include assistance in the training of teachers as programmers; instructional materials on programming; continued consultation and workshops, and periodic newsletters.

#### U.S. INDUSTRIES, INC., EDUCATIONAL SCIENCE DIVISION

250 Park Ave., New York 17.

#### Machines

The AutoTutor Mark II presents micro-filmed material on an individual screen. Student reads material and selects what he considers the correct answer to a multiple-choice question by pressing one of nine buttons. AutoTutor automatically selects either the next unit of new material and next question, or cor-

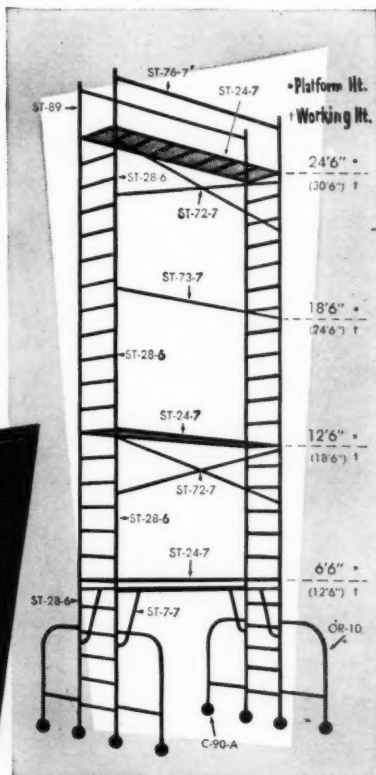
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Available now in Aluminum and Tubular Steel.  
Write for detailed information.

**BIL-JAX, INC. • ARCHBOLD • OHIO**

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## This chair was sentenced to a year of punishment

Summer's sun won't fade or fade it, winter's worst weather won't crack or craze it, impact testing at 40° below zero wouldn't break it. Virco's new #867 chair is virtually indestructible. A year of torture testing—including over 60,000-cycle life testing—has proved the strength of the 867 and its MARTEST plastic seat and back.

MARTEST, a plastic with a propensity for taking punishment, is molded in our own new plant and is coupled with a heavy gauge steel frame. And MARTEST has at least two other advantages: It caters to student comfort, and it pleases school budgets by lowering the price of plastic to the cost of wood.

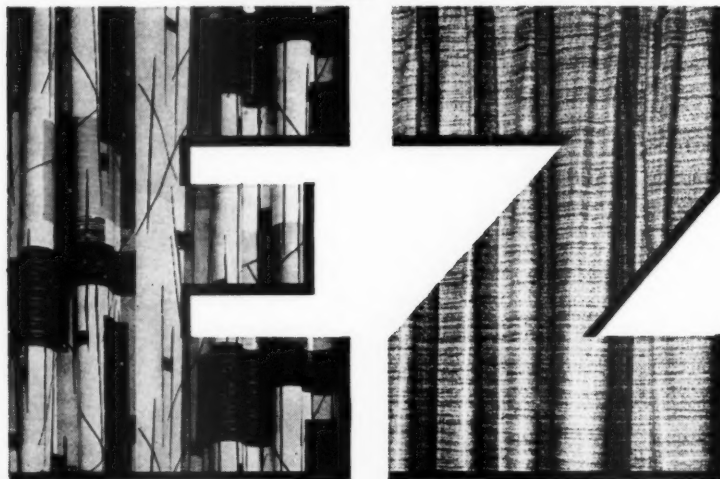
Our new full experimental provides long-lasting on Virco's line of school furniture for schools and institutions. Also, Virco's Department of PAL EXHIBIT Station, Inc., Acapulco, California, (Plastic Arts) and Pennsylvania.

# VIRCO

For more information, contact Virco, Inc., 1000 N. 10th St., P.O. Box 1000, York, PA 17402.



# LUXOUT®



\* Easy-Wipe! Get it? Oh, well . . . we told the boss you wouldn't. But he insisted on this slogan. He said everyone ought to know LUXOUT Light Control Drapes can be wiped clean with a dry or a damp sponge . . . or vacuumed . . . or washed . . . or sprayed. However, he pointed out that all this is seldom necessary because LUXOUT Drapes just don't seem to get very dirty. He said ease of maintenance is a primary consideration in the purchase of classroom equipment . . . and everyone should know that LUXOUT Drapes are practically maintenance-free. He would have said more . . . so we decided to use the slogan and ask you to write for additional information about the beauty, versatility, and durability of LUXOUT—the world's finest vinyl light control drapes.

*Free brochure and color samples upon request*

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1822 East Franklin Street  
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rectional material specific to the error the student has made. Following correction, student is returned to question missed to try again. Four automatically selected modes of operation provide positive testing and recycling of student until he demonstrates understanding. Cost: \$1,250. Available immediately.



TutorTexts are also prepared by U.S. Industries and published by Doubleday and Co., Inc., Garden City, N.Y. These are books in which material is presented in "scrambled" form. Each page contains new information and ends with a multiple-choice question. Student selects answer and turns to indicated page number. These texts are also for high school level and up, and are available in mathematics and law. Cost: \$4.95 per volume.

#### Programs and Services

Available courses geared to high school level and up, include electronics, mathematics, law and English. Programs average \$5 per study hour (i.e., \$25 for five-hour program).

Services offered by U.S. Industries include literature, sample programs, demonstrations and technical assistance.

Several companies currently working on teaching machines are not ready at this time to release complete details, since models and/or plans are not completely formulated. These companies, which are in various stages of planning and experimenting include:

#### APPLIED COMMUNICATION SYSTEMS, DIV. OF LITTON SYSTEMS, INC.,

8535 Warner Drive, Culver City, Calif. In cooperation with Prentice-Hall, Inc., Englewood Cliffs, N.J. Presently conducting research to determine the areas in education where teaching machines are needed. Possibly a family of machines will be produced. Prentice-Hall will decide from its research what education would like in this area before pre-

paring programs. Machines and programs may be available by the fall of 1962.

#### ELECTRONIC TEACHING LABORATORIES,

5034 Wisconsin Ave., N.W., Washington 16, D. C. Has produced models for experimental, internal use that utilize synchronized tape and filmstrip with responses recorded on tape and reinforced by taped answers.

#### RECORDAK CORP.,

Wanamaker Place, New York 3. Plans to produce a special microfilm viewer for use as a student-paced, auto-instructional device. No date set as yet for production of units.

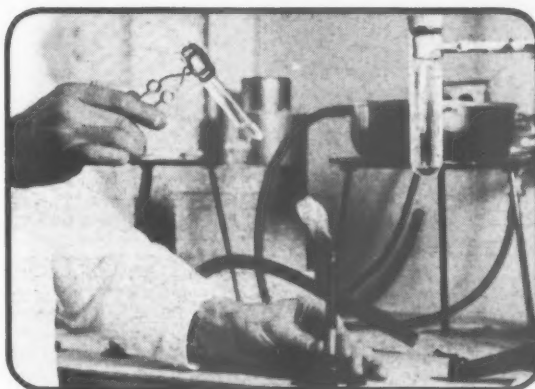
#### VIDEOSONIC SYSTEMS, HUGHES AIRCRAFT CO.,

Culver City, Calif. Plans to have available by the fall of 1962 its Student Model Series 600 which will feature multiple-choice, oral completion and/or written completion responses.

#### WILLIAMS RESEARCH CORP.,

2280 W. Maple Rd., Walled Lake, Mich. Perfecting Science Desk which utilizes motion picture film to instruct individual students and also to quiz them. Student is required to respond by pushing answer buttons. He is automatically graded on adding machine type tape at the right of the screen which also records answers as correct or incorrect. **End**

## WITH PHILCO CLOSED CIRCUIT TV



## INSTRUCTION BECOMES LUCID

One of the more important values of closed circuit TV in education is its ability to highlight many areas of study, more clearly, to more students than normal teaching methods. Instructional TV also allows the great economy of multi-group instruction, and makes specialized teaching talent available to a greater number of students.

Philco's highly developed, fully transistorized equipment, with "building-block" design is easy to operate, maintenance free and satisfies future TV needs without costly replacement. Philco engineers will be glad to assist you in planning your closed circuit TV system. Write today stating your problems.

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**WILLOUGHBY-EASTLAKE CITY SCHOOLS**  
GRADE REPORT

**SCHOOL CODES:**  
11 - NORTH HIGH SCHOOL  
12 - SOUTH HIGH SCHOOL  
13 - EASTLAKE H. S.  
14 - WILLOUGHBY H. S.  
15 - WILLOWICK H. S.

**STUDENT NAME:** JIMSON, RD  
**GRADE:** 12  
**SCHOOL YR:** 60-61  
**DOB:** 12  
**SEX:** M  
**STUDENT NO.:** 079950

COURSE	INSTRUCTOR	SIX WEEK GRADES						EXAM	FINAL GRADE	CREDIT
		1	2	3	4	5	6			
ENGLISH 3	REP	4	3	3	3	4	4	3	4	1.00
ALGEBRA 2	LEC	2	4	3	4	4	4	2	3	1.00
AMER HIST	DLS	2	4	3	3	4	3	2	3	.25
PHYS ED	VWM				3	3	3			1.00
LATIN 3	AIK	4	4	4	4	4	4	4	4	1.00
ENG ORG	KRW	4	3	2	3	2	4	3	3	1.00

**GRADE KEY:**  
4 - EXCELLENT (A)  
3 - GOOD (B)  
2 - AVERAGE (C)  
1 - BELOW AVERAGE (D)  
0 - UNSATISFACTORY (E)  
- INCOMPLETE (I)  
Ch. UNSATISFACTORY - CREDIT GRANTED MAY NOT BE USED IN 1/4 CREDITS REQUIRED FOR GRADUATION OR IN GRADE CLASSIFICATION.

This report indicates your child's achievement in relation to the achievement of his classmates and to fixed standards for the courses taken. If you have questions concerning his progress, you are urged to come to school for conferences with his teachers or the principal.

**PARENT'S COPY**

## She was teaching while this was being written

Yes, even report cards are turned out by the IBM system at Willoughby-Eastlake City School District, near Cleveland, Ohio.

In fact, IBM machines have taken several clerical chores off the shoulders of the teachers—giving them more time to teach.

Punched cards now produce attendance records, class scheduling, school bus scheduling, medical records. In addition, the IBM system does test scoring, payroll, retirement reports, sick leave accounting. As a result, records and reports are more accurate and up-to-date than ever before.

The Willoughby-Eastlake administration in this growing 10,000-pupil system now forecasts teacher and classroom requirements with great accuracy, thanks to the statistical analyses performed by the data processing equipment. Students get better service too, with course curricula and individual class assignments more accurately geared to student needs, abilities and performances.

Perhaps your school system can reap the same benefits. Your IBM Representative can tell you how IBM punched card equipment can help solve your information problems.

**IBM**  
DATA PROCESSING

(Circle number 721 for more information)



# How a little money can make big news



ARTHUR T. ANDREWS  
Public Information Director  
Port Jefferson, N.Y.

For less than \$1,000 a year, schoolmen in Port Jefferson, N.Y. serve a steady supply of news to their public and 20 local newspapers and radio stations. Here's how limited funds can go a long way toward keeping your public informed.

■ ■ ■ A barrel of cash is not a prerequisite for an effective public information program. The job can be done effectively on a shoe-string.

In Port Jefferson, N.Y., schoolmen furnish 20 local newspapers and radio stations with a steady supply of genuine news—and publish quarterly informational bulletins for mailing directly to the community's residents—all for less than \$1,000 a year, one-tenth of 1% of the district's budget.

"People who think they have to spend heavily to maintain good

community relations are wrong," says Arthur T. Andrews, head of Port Jefferson's public information program. "The job can be done just as well with a lot less money when schools use the resources—including people—which are available to them.

"In our district, for example, we make full use of our high school print shop, the administrative office's duplicator, and the high school photo lab. The expense, prorated for our public information department, is negligible.

"Volunteer teachers and students

## rs Queried By Class Project

the students' questions. Both students and authors took the project seriously and made a conscientious effort to state their questions and without fills. L. honestly and without the in- Quotes from several of the authors answering the in-

## Elementary School Teacher Feted For 50-Year Service

Mrs. August Short, elementary teacher on the faculty of the Holbrook Road School of Middle County Road School District, (Centereach, Selden, Lake Grove) was honored at a special dinner this past week at the Republican Club. Friends, fellow teachers and distinguished guests were invited to make the long ride.

## Benefit Sale Will Send Stony Brook 6th Grade to N.Y.

The annual food and plant sale to benefit the 6th grade Stony Brook School will be held on May 27 at 4 to 6 P.M. on the steps of the Christian Avenue School. Headline the committees are Mrs. Joseph and Mrs. Woodford Rand, Mrs. David and Mrs. Robert and Mrs. Carol and Mrs. John.





***"By using volunteers and resources at its command, any school district can have a good public information program at a price it can afford."***

gather and prepare our news releases and information bulletins. We don't have to maintain a large mailing list because we address news releases by hand and lease a low-price addressing service for the bulletins. For mailing, we have a third-class, bulk rate permit—a low cost arrangement for nonprofit organizations."

Andrews himself personifies the use of available personnel resources. He is not a public relations man, but chairman of the high school's Citizenship Education Department. For about two hours each day he directs Port Jefferson's public information efforts as a collateral duty. His experience in the field consists of a college course in journalism and three summers of publicity work for a business firm. For directing the public information program, he receives a stipend of \$500 a year—the only fixed expense for keeping the public informed.

#### **What makes news**

The district's program has two objectives, both reasonable goals for small districts using nonprofessional help. These objectives are:

1. To keep news about the schools flowing to the public.
2. To build morale and good will among teachers, students and the community.

"To reach the objectives, we write and submit to the newspapers, stories about all the news our

school system generates," says Andrews. "And there is plenty of real news available without getting into the area of sports and student social clubs. Those things take care of themselves."

The public information department concentrates on activities of teachers and administrators, individual student accomplishments, class projects, changes in school procedures or policies, school board proposals and resolutions, etc. For example, if the supervising principal spoke before a civic club, his remarks would probably interest the general public, so a news release is sent out on it.

"Similarly, our district is now planning to reorganize and consolidate with eight others," Andrews relates. "This is a lengthy procedure, and we have been getting out releases on every new development for several months now.

"When our teachers are promoted, or if they gain tenure or are elected to offices in a teachers' association, we send out releases. I can think of no better way to give these people a pat on the back, and it certainly builds up community interest in the schools. To coin a phrase, it creates a 'favorable image.'"

#### **How to gather news**

There are two basic methods for scouting out and gathering news in a school system. One is for the public information officer himself to

maintain liaison with the policy makers and administrators. The other is for a staff to maintain contact with teachers and students. In Port Jefferson, Andrews uses both.

On the policy level, school officials keep him informed through carbons of correspondence and informal briefings. He is thus able to spot potential news stories before they break. Having gotten in on the start of a project, he can write stories with full knowledge of the subject.

Or, if a special school board or PTA meeting is scheduled, he can notify the local press and radio and outline the topic which will be discussed. Later, he can follow up with a news release. Since Andrews is kept informed of potential news items, he is also in a position to refer controversial topics to the proper administrative authority.

But most of the news of interest to the general public comes originally from teachers and students. To stay on top of developments in the classrooms, Andrews has organized a pyramid-like staff of news gathering volunteers.

Each of the district's schools has at least one teacher who does part-time duty as a "reporter" for the public information department. These teachers are not trained journalists—"just people who have an awareness of what's going on about them and who can write a simple, factual account of what



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## GEMENT

"Getting the news into the right hands is really a very simple oper-

For addressing the bulletins, the district leases an addressing service from a local newspaper. Bulletins reach every home in the district. Because Port Jefferson has a mailing permit at low rates, the cost of addressing and mailing an

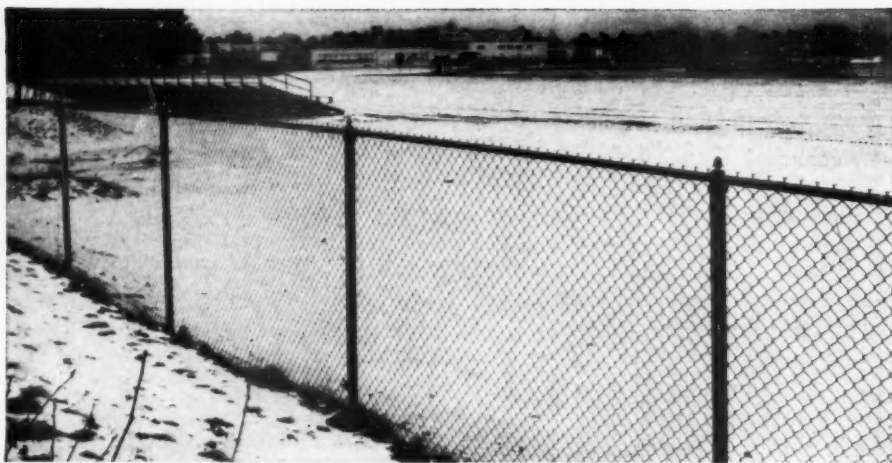
? ?

*In Anaheim, Calif., elementary school principal Wynne Silver believes the foundation of a public information program is face-to-face contact with parents by the staff and the PTA. Here's a checklist he developed so school administrators can measure their "Public Information Quotient":*

Yes	No	Yes	No
1. Do parents seek your assistance?		12. Are you aware of sentiment in the community regarding the curriculum in your school?	
2. Do parents visit their children's classes frequently?		13. Do you make a point of recognizing students' and teachers' achievements?	
3. Do parents feel free to discuss their observations with you?		14. Do you have a good participation at PTA meetings?	
4. Is your whole staff involved in informing the public?		15. Do the parents and teachers work well together?	
5. Do you have discussion groups on a regular basis?		16. Do you judge the effectiveness of your public relations efforts by your popularity?	
6. Do you have a regularly issued newspaper?		17. Does your PTA function without your guidance?	
7. Are you included in PTA functions outside of school?		18. Are your PTA relations your total public relations?	
8. Do faculty members serve on the PTA Executive Board?		19. Do you forget people who have no children in school?	
9. Do parents praise your teachers frequently?		20. Are classrooms closed for visitation at any time?	
10. Are parents aware of special projects and programs?			
11. Are you available when parents need you?			

? ?





Architect: Walter M. Gaffney Associates, Inc., Hyannis, Mass.

## "... our Anchor® Fence prevents double trouble."

King Philip Regional High School, Wrentham, Mass.

"Our high school's football field borders on the back yards of several private homes on one side, a road on another—so you could say our Anchor Fence prevents double trouble. One, it keeps our activities within our own grounds. Two, it keeps our grounds free from outsiders. About 3500 feet of Anchor Fence have been doing both jobs beautifully since 1957—and all with no maintenance!"

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entire issue of the bulletin is only about \$25.

"The whole information program is really a seat-of-the-pants operation," says Andrews, "but it's surprising how well it works. For example, in one of our junior high history classes, an instructor took some students on a field trip to West Point. The class went at its own expense, selling cookies to finance the project. When the group got back, the instructor suggested that a teacher-reporter write a news story. She did, and less than a week later, the story was in the papers with photographs taken by students."

Common sense and simplicity contribute to the organization's effectiveness. "Every volunteer knows his job," points out Andrews, "and they know how they fit into the whole program. We have an organization chart which describes their duties. It also tells how others throughout the district can help us by keeping our 'staff' informed of ideas for stories. Consequently, there's no red tape and no delays in getting out a large volume of news."

### The public information officer

As chief of the district's information program, Andrews has other duties in addition to getting out news releases and writing the school bulletins. One of his most important functions is serving as an information source for inquiring persons—new residents to the community, curious editors, etc.

"Newspapers and radio stations, particularly, know that my job is to keep them informed and to answer their questions. If I cannot supply any information they need, I put them in touch with the person who can. The same service is extended to real estate agents, librarians, and other persons who want information about the schools.

"This has saved everyone, especially school authorities, a lot of time, and it insures the dissemination of factual information, not rumors or hearsay. It has become the foundation of an excellent relationship between the community, the press and the schools." **End**



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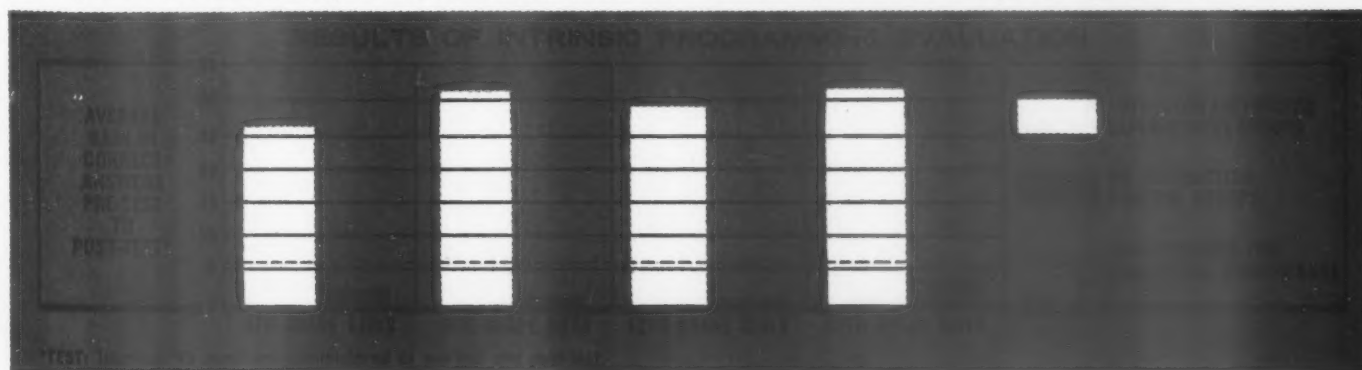
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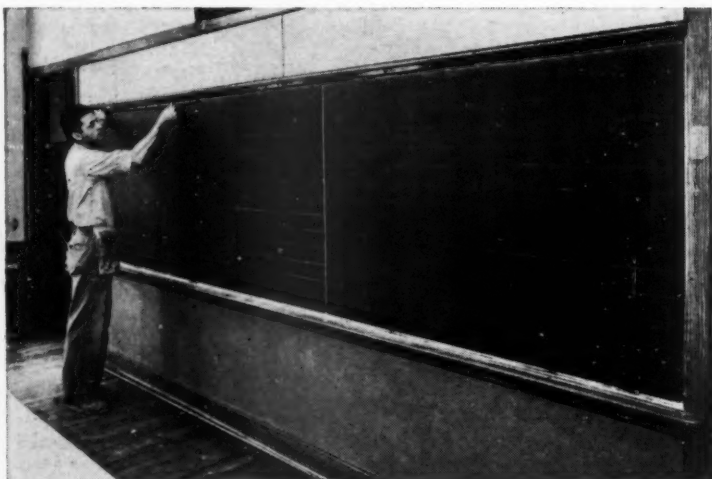


# New chalkboard for old— in 45 minutes

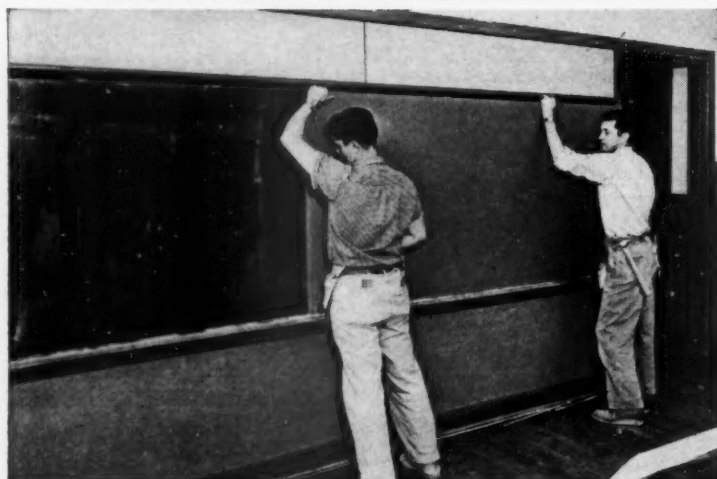
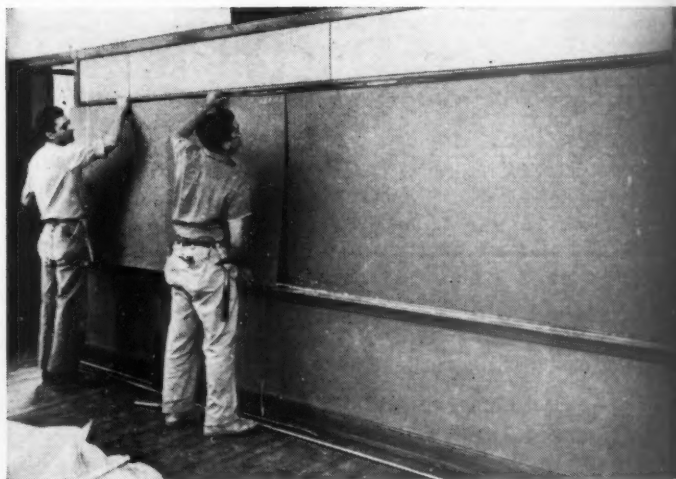
■ ■ ■ Old, pitted blackboards can put a dent in a modern educational program. But the cost of replacing them can produce an even bigger dent in a school district's budget. A year ago school officials in Lakewood, Ohio realized that blackboards in at least 14 of the district's schools—all more than 30 years old—would have to be replaced. The seams between the slates had grown jagged. Large splotches of whitish discoloration had made it difficult to read what was written on the boards.

Initial calculations indicated the system needed 3,500 square feet of new board for 90 rooms in the

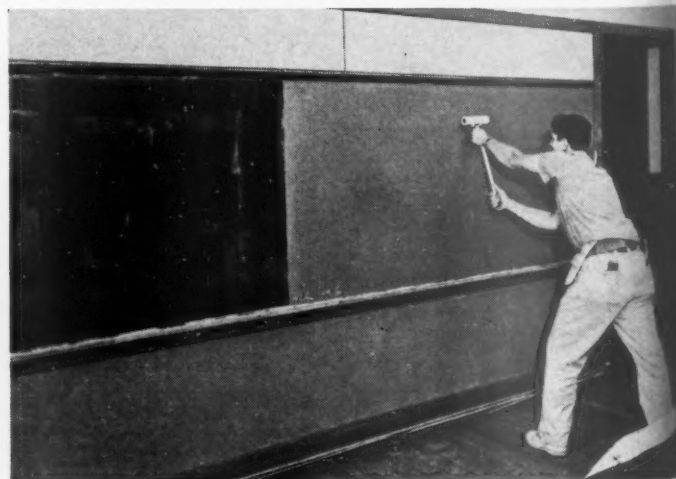
1. MEASURE AREA TO BE COVERED



2. CHECK THE FIT



5. FIT NEW BOARD INTO PLACE



6. PRESS BOARD WITH LINOLEUM ROLLER



14 buildings. To remove the old boards and install new ones, it was estimated, would cost between \$9,000 and \$10,000. Despite the cost, plans were set to begin the replacements the following summer when work would disrupt a minimum number of classrooms.

When bids were let on the job however, the district became aware of a new development in steel boards. A new product, made by Korok, Inc. was a thinner version of another Korok board, cut from sheets of steel. Panels of any size could be cut easily and porcelainized for delivery, then set right in over old slates.

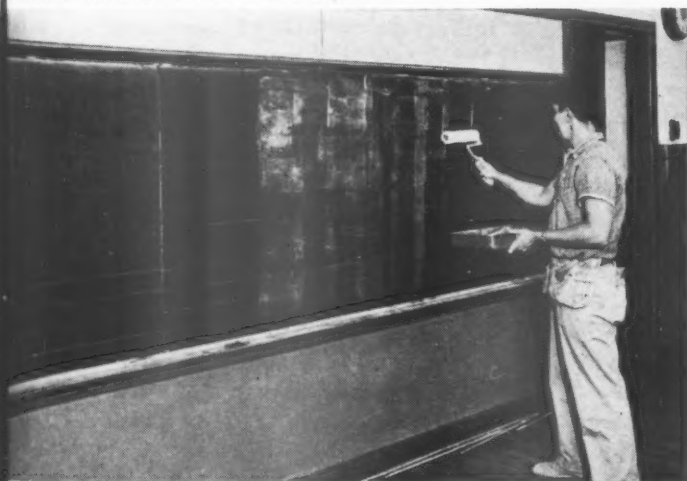
The old boards were simply washed down. Wherever deep pits appeared, they were filled with a putty-like product. Then the backs of the new boards were smeared with adhesive, as were the old slates after they had dried. Molding was stripped away and put to one side. After about 10 minutes, when the adhesive had become tacky, the new board was applied. It was given a final pressing down with an ordinary linoleum roller. The molding was then replaced and the new board given a final washing and it was ready for use.

The whole job—90 rooms in 14 buildings—took two men less than

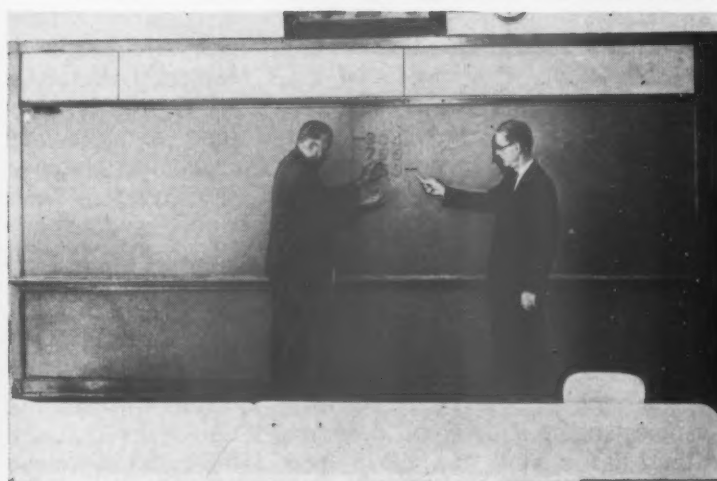
a week, including the minor clean-up when the job was finished. It cost less than \$5,000. If the district's regular maintenance personnel had been trained to do the work, the price could have been reduced by about \$1,000.

Most impressive to Lakewood school authorities was the speed with which the new boards were applied. An entire classroom was completed in 30 to 45 minutes. "Imagine," said one administrator, "children could go away on their lunch period and come back and find their classroom had acquired new chalkboard during their absence." **End**

1. APPLY ADHESIVE TO OLD BOARD



4. APPLY ADHESIVE TO NEW BOARD



7. REPLACE MOLDING

8. READY FOR USE; ELAPSED TIME, 45 MINUTES



## The new look

continued from page 82



**"The chairman talks on the students' level. Teachers are inclined to talk more formally, often over the students' heads."**

**BELFORD**

—and that's the *minimum* for what most people are doing!"

So far as possible, all humanities classes are scheduled for the morning, all science-math classes for the afternoon. This insures that most teachers in each division will have unscheduled time in common.

These, then, are the most important mechanical arrangements that Ridgewood has made to pave the way toward unity of knowledge. Without them, nothing practical could be accomplished. But in themselves they can accomplish nothing. The success of the program depends heavily upon a knowledgeable, alert faculty. And it is here that the program shows one of its greatest strengths.

As the teachers plan across subject lines, attend lectures in other courses and share one another's classes, they are rapidly widening their own knowledge. As a result, they are increasingly weaving together the threads of the various subjects. The Ridgewood program thus has a kind of built-in feed back, which should raise it con-

stantly to ever higher levels of success.

### Initiative for learning

Ridgewood's primary goal—to nourish in each student an initiative for self-education—is still more far-reaching, and the means for achieving it are more diverse. In this phase of its program, the school has been strongly influenced by the recommendations of the so-called Trump Commission—the Commission on the Utilization of the Staff in the Secondary School, financed by the Ford Foundation and headed by Dr. J. Lloyd Trump. (See *"Questions and answers about teacher utilization," SM, April '60, for a full discussion of this concept.*)

A main tenet of the Trump plan—and of the Ridgewood program—is that teachers must be free to teach. Their time should not be frittered away in nonprofessional chores. The 23 professional teachers are therefore supplemented by a staff of six instruction assistants, three clerical assistants and three part-time general aides, whose duties include mimeographing, recordkeeping and cafeteria supervision. There are no study halls.

### Scheduling students

Most students take at least seven subjects, and every subject—except for typing, band and freshman physical education—is conducted in both large groups and seminars. (Science labs are classified as seminars.) In the student's remaining time, he is assigned to various individual study centers. Add the fact that different classes run for different lengths of time, and the complexity of the scheduling task becomes apparent.

As a rule of thumb, each Ridgewood student spends an equal share of his time in large-group instruction, seminars and individual study. Here's how it works:

Every day starts with a 40-minute large-group session in English, history or humanities. (During this time, the science-math division holds its daily meeting.) After that one fixed period, the student

moves into an irregular pattern of seminars and large groups. By noon, he will have met nearly all his humanities classes for the day, including a seminar of the same subject as the early-morning lecture. During the afternoon, he will encounter most of his science-math large groups, seminars and labs. (When all grades are fully enrolled, half the students will reverse this schedule, taking their humanities courses in the afternoon.)

Seminars are usually 40 minutes long; science labs and physical education, 60 minutes. As a result, classes continually overlap; the teachers keep an eye on the clock, and no bells ring. Whenever possible, seminars of the same subject and level are scheduled at the same time, so that the teachers can exchange classes or bring them together.

When the student is not in a scheduled class, he is assigned to a study area. These assignments vary sharply in length, for this is the device that permits the Ridgewood schedule to function smoothly. The day is set up in modules of 20 minutes—21 of them, from

**"The teacher does not abdicate his authority—he delegates it."**

**HELLER**





8:20 to 3:20—and the student can work in the study area for any number of modules between scheduled classes. “We’ve sought to avoid the single 20-minute period because it’s too short,” Dr. Heller explains, “though there are a few of those throughout the students’ schedules. Mostly, students work at individual study for longer periods—40, 60 or 80 minutes.”

The device works—but scheduling is—and will remain—Ridgewood’s most troublesome administrative headache.

### Large groups

Large-group sessions are held for every course in both divisions. The only exceptions have been second-year Latin, Spanish and French, where enrollments were low and no large groups existed. But large groups have proved their value in other language courses.

Depending on the course and hour, the large groups range in size from approximately 65 to 130 students. They meet in rooms specially designed for audio-visual presentations: an overhead projector and screen, a microphone and heavy window curtains are standard equipment. Tape recorders are available, and installations have been prepared for the eventual use of closed-circuit television. The rooms hold 130 students comfortably, and at least two teachers are present at every lecture.

For his first-period lecture, each student reports to the same room every day. Two meetings a week are on English, two on history. The fifth meeting, designated “humanities,” is reserved for enrichment and may be taught by any teacher. All teachers in the school are free during this period (the science division is holding a staff meeting, but individual teachers can be excused), and all can take part in the lectures. There are no barriers to the crossing of traditional subject lines.

After this first period, large-group classes are staggered throughout the school day. Discipline is no problem, except occasionally in the last-period lectures. “We find,” says Heller, “that it

***“Once the student gets involved in the learning situation, he finds that the teacher can help him in many ways.”***

SMITH



would be better to move some of these to an earlier hour. There’s a bit of restlessness during the last period which sometimes impedes large-group instruction.”

The lectures are, in the fullest sense, a team project. Many are prepared—and some are presented—by several teachers. Even when an individual teacher writes the actual outline, he bases his work on joint research and long discussions among members of the division.

The lecturers’ job is both to inform and to motivate: to present basic facts and concepts while whetting the students’ interest. They make use of all possible visual aids and prepare separate lectures for different ability groups. (On a few occasions it was necessary to expose different ability groups to the same lecture. Every time this happened, the related seminars ran into difficulty.)

During the first year, lecturing assignments were handled by almost every teacher, but it is likely that this will be changed. “Some teachers have shown greater potentiality and interest in lecturing,

others in seminar work,” Heller explains, “and we’re planning to utilize these strengths. There will be a somewhat more clear-cut pattern of lecture-teacher and seminar-teacher. But there will be no salary differential between them.”

### Seminars

“A large group is fundamentally teacher-centered. A seminar is fundamentally student-centered.”

This is the cardinal principle of the Ridgewood program. In the seminar, every student is wholly involved—*actively* involved—in the learning process. Student chairmen lead the discussions; the teacher figures only as a subtle guide and resource person. The immediate responsibility for education rests upon the students themselves.

Seminars are held in every subject but band, freshman physical education and typing. (The time in typing is devoted to individual practice.) They range in size from 10 to 19 students; science labs average 20. The ideal seminar has 15 students, and most Ridgewood groups come very close to match-



ing it. Groups of 20 or more are unwieldy, and those with fewer than eight students tend to be shallow. "They don't have enough opinions to exchange with one another," Bettye Belford, co-chairman of the humanities division, observes. "They can talk a little bit about their opinions on things, but they don't really learn much from each other."

And Administrative Assistant James Smith adds: "This is a big danger in seminars. You can't be talking off the top of your head. You have to have the materials; you have to have the knowledge."

The seminars are fairly homogeneous. Each group is drawn from students of the same ability level; and in history and English, the relatively better students at each level are brought together in special "accelerated" groups. Some diversity remains, of course, but every student is expected to participate freely, regardless of his scholastic prowess.

Ridgewood has six rooms specially designed for seminars—actually three rooms divided in half by walls with glass panels and connecting doors. Three more rooms will be similarly divided as the enrollment increases. Some teachers find it possible to supervise two seminars simultaneously, moving from one to another as the need arises. In other cases, a teacher from another subject area might talk with each group for half a period, exchanging places with the seminar teacher while both groups remain under supervision.

The furniture in a seminar room is simple: one oval table with chairs. But it is in this quiet environment that some of Ridgewood's liveliest activity takes place.

The discussions take many shapes. Twice a week in English and twice a week in history, the students will have a seminar on the same topic as the first-period lecture. These meetings are usually round-table discussions, sparked by questions from the student chairman. But there are many variations, including prepared, semi-formal debates.

Individual reports are often a part of the seminar process. The small group allows unusual flexibility in spur-of-the-moment research, sending a student to the

library to check a fact or gather some background information. There is also extensive reliance on research leading to prepared class reports—and here, Miss Belford points out, the difference between a seminar group and a traditional classroom is sharply apparent.

"If you have a student give an oral report in most classrooms, the others just sit there and listen and nod their heads. Usually they accept whatever is said without any questions or comments. But if you have a report on extra research that grew out of discussions in the seminar, the effect is very different. The report isn't as lengthy, for one thing, and it's more straight-

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***"The image of the teacher which many students have is not one of a friend and advisor. It is of a severe—or maybe, in some cases, a nutty—adult."***

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SMITH

forward. It doesn't have the editorial attitude. The student is sharing information with the group; he's not himself a center of interest. And the group listens; it asks questions; it follows through with a discussion."

Seminars are productive even in subjects such as mathematics, which until recently was considered rote learning. "In our mathematics," Mr. Smith explains, "we're not trying to learn rules. We're trying to build certain basic concepts, and the discussions revolve around these concepts—what they mean, and how they can be applied."

Language seminars are conducted along more traditional lines. Students are called on for recitations and chalkboard exercises. There are just two differences: a student chairman runs the class, with the teacher's guidance, and much of the conversation is carried on in the foreign tongue.

Are students competent to correct errors in pronunciation?

"If the error is obvious enough,"

Miss Belford points out, "the students will catch it. If they don't, the teacher will step in."

"And these conversations can be recorded," Mr. Smith adds. "The tapes can be played back, and pupils can hear their own errors. This is a very effective learning technique."

"We don't encourage errors, but we do try to keep the student speaking. If the pupil can communicate freely, errors notwithstanding, I personally am convinced that we're achieving something."

### **Student chairmen**

The pivot of a seminar is the student chairman, to whom the teacher delegates a part of his traditional role. The selection is left entirely to the seminar teacher. Some have a fixed schedule under which each student takes the chair for a week or two. Some ask the groups to elect their own chairmen for longer periods. Some appoint a new chairman each time the class meets.

The chairman directs the entire class discussion. He asks questions, probes for contributions and recognizes a speaker when several voluteer. He listens for inconsistencies in the conversation and presses for clarification. He keeps the talk from wandering too far afield, and he makes certain that everyone in the group is drawn into the discussion. "A good leader," says Mr. Smith, "is more a digger than an information-giver. He doesn't need basic knowledge so much as an understanding of group dynamics."

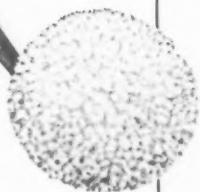
In general, the student chairman confers with the seminar teacher in advance of each class meeting. Between them, they decide on the discussion questions. The teacher might brief the chairman about the content of a lecture and then allow him to frame his own questions. Often, the teacher draws up the questions, and the chairman plans an effective way to introduce them and follow them through. The chairman may also attend special classes which offer training in group dynamics and discussion techniques.

The relationship between each teacher and chairman is unique. It depends on many factors, above





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all, on the temperament of the two individuals. The students know that they are expected to take responsibility for their own education, and they are accepting the challenge. More, they are demanding it.

"An able student chairman does not take orders from the teacher in the traditional sense of the word," Dr. Heller declares. "This student himself can direct a discussion, can change the subject, can lead the group. In conferences, he can help the teacher assess the interests of the group. Faced with such competence, many teachers will turn over the managerial reins of the seminar, but the authority, although delegated to the chairman, remains that of the teacher."

The use of a student chairman is worth all the trouble, Miss Belford believes. The chairman talks and thinks on the students' level. Teachers are inclined to talk more formally, often over the students' heads.

"The image of the teacher which many students have is not one of a friend and advisor," says Mr. Smith. "It is one of a severe—or maybe, in some circles, a nutty—adult. Once the pupil gets involved in the learning situation, he finds that the teacher can help him in many ways.

"The kids will be discussing something and going along smoothly—and then suddenly come to a point where they're stumped. And they'll ask you: will you come over and clear this up for us? That's about as ideal a learning situation as you can get."

#### Teacher's role

In the seminars, the teacher usually stands away from the discussion table. If he sits, he generally moves his chair back a few feet and never sits near the head of the table. But this does not mean that he subordinates himself to the students.

"The teacher does not abdicate his authority," Dr. Heller insists. "He delegates it. He tries to get the pupils to carry the discussion, but he is just as much a part of the learning situation as he can be in any other classroom—perhaps even more so. It's not easy to guide a discussion through subtle influ-

ence. It requires a great deal of finesse and knowledge."

The teacher steps in to correct errors of fact, to keep the main issues in focus, to make certain that all students participate and to channel the conversation into deeper waters. In all cases, however, he tries to work through questions that will alert the students, rather than through direct imposition. And, he is available as a resource person; he can supply information that will keep the discussion from stumbling to a halt over details.

The influence of the seminar extends beyond its own meetings into the student's individual study

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***"The seminar teacher tries to get the pupils to carry the discussion, but he is just as much a part of the learning situation as he can be in any other classroom—perhaps more so."***

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HELLER

time. Assignments for independent study are made by the seminar teacher, based often on the group's discussions; and the study frequently results in reports which are presented to the group.

#### Individual study

When the student is not in a scheduled class, either large-group or seminar, he is assigned to one of 12 study areas. During any week, he will work in several of these areas, corresponding to the courses in which he is enrolled. Individual study is assigned for every course, without exception.

The 12 areas are: the library; resource centers for science and humanities; laboratories for reading, foreign languages, physical education, industrial arts and home-making; and separate study rooms for math, music, art and typing. Each area is fully equipped with books, tape recorders, study models, drill exercises and other essential resources. (Some teaching machines with programmed instruction may be added gradually, but in moderation. There is general agreement that student initiative is

not nourished by a steady diet of machines.)

For purposes of accountability, students must report to their assigned areas; but once they check in, they are permitted to go to different areas in which they might have greater interest or greater opportunities. So long as the students are taking responsibility for their own learning, technicalities of scheduling are irrelevant.

Next door to each study area—or directly across the hall—is a staff office for teachers of that subject. At least one teacher is always on hand for consultations.

"In a traditional study hall," says Dr. Heller, "the teacher in charge is usually competent in one or two subject areas. The pupils under his charge are there to study a variety of topics. Very often the teacher doesn't have the knowledge to help a student. We don't have that problem at all. The teacher in charge of an individual study area is always competent in that subject."

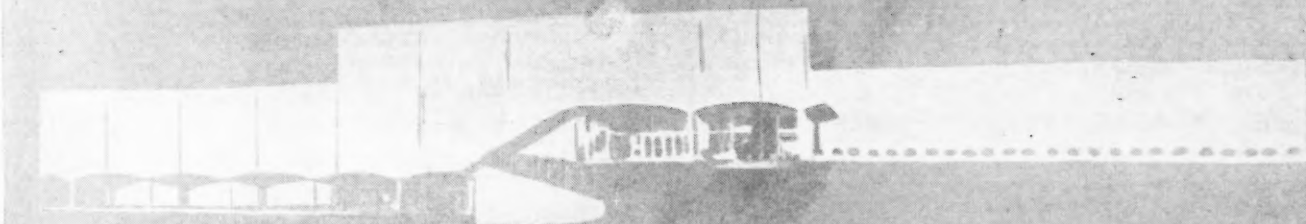
The students themselves rarely confuse individual study with the usual study hall routine. In the first place, they are working on specific assignments, not just browsing or doing homework. The assignments are designed to lead the students deeper into the subject—and only partially to reinforce what they have already learned. Finally, the atmosphere is one of search and involvement, not of carrying out a chore.

Students may work alone on these projects, or they may work in groups up to four or six. Some of the assignments are brief: a world history class, for example, was assigned to hear a taped dramatization of a Greek play at one of the "listening posts" in the resource center. Others are long-range: students of home economics may be assigned to design and make dresses and suits. In many classes, the assignments are initiated by the students, subject always to the teacher's approval.

On the average, each student spends one-third of his school time—nearly a dozen hours a week—in supervised individual study. In practice, the preponderance of this study is done by students of lesser ability. "This is working out somewhat peculiarly,"



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Dr. Heller concedes. "Our able students, because they take more courses, unfortunately have less than their share of individual study. Our less able students have more individual study time than they can handle. But they are learning how to use it, and we are working on plans now to help redress the situation for members of future classes."

### The future

Ridgewood's goals and program are far from complete. It's doubtful if the curriculum will ever become standardized. A number of long-range problems must be reckoned with. Scheduling ought to be simplified, and ways must be found to challenge the lower-ability groups more effectively in their seminars.

Perhaps the most delicate administrative problem is that posed by the trend toward specialization among the faculty. "As time goes on," Dr. Heller suggests, "we may very well have large-group experts who present large-group information and spend the rest of their time in research and coop-

erative planning with other teachers. We may also have seminar experts. We don't have this now; but as our insights grow, we may very well change."

One thing is certain: the faculty and students at this extraordinary high school are sold on the Ridgewood program.

By selection the faculty is relatively young. The teachers have adjusted to the innovations more easily than might an older, more settled group. ("I don't see how any school could set up this type of program without a young, pliable staff," says Dr. Heller. "By that I mean young in ideas, not years. Some people are old at age 12.")

But their enthusiasm has grown far beyond what any of the first planners dared to expect. It sweeps up the visitor in a torrent of excitement and self-examination. Teachers feel exceptionally close to their students, for at Ridgewood they are not force-feeding but sharing in a genuine concern for learning. And they have a team sense that is all too rare in their profession. **End**

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## Do teachers deserve tenure?

*continued from page 76*

WAMPLER: Probably not. We would expect him to come in and talk with the superintendent or deputy superintendent if he had some reservations about the person. But it is doubtful if he would talk with other members of the teaching staff.

**Q.** How about your third item, personal characteristics?

OREAR: I think here again it's more subjective, and more incidental, than teaching ability. This would include the principal's observations of such matters as the type of clothing a person wears, personal grooming, physical appearance, vitality, resistance to illness, discretion and tact.

**Q.** Is there any rating system employed? That is, is any one of these items more important than the others?

WAMPLER: Each item is rated on a five-point scale: outstanding, strong, satisfactory progress, needs improvement or unsatisfactory. As

**"Weak teachers are asked to leave after the first year. It's fairer to the children."**

OREAR



to weighting, we deliberately say to the principals that none of the items are of the same weight. Probably teaching performance has to weigh higher than the others, but we don't deliberately attempt to define it.

## Q When do you have your first formal teacher evaluation?

WAMPLER: The principal has a formal evaluation conference with the teacher by the end of two-and-one-half months of teaching service. But that is a private setup between the principal and the teacher. The principal will not send a report of that conference to the superintendent's office, unless he has concern about the teacher at that particular point.

**Q.** So that by Thanksgiving, you will have received a report on any teachers that have major problems?

WAMPLER: That is correct. If a teacher seems to be doing well, I will not receive a report. If there are problems, we do hear about them and find out what steps are being taken to correct them.

**Q.** How many formal conferences does the principal have with a first-year teacher?

OREAR: Following this one in the fall, he has a second major conference sometime in the spring. A report of that conference is automatically forwarded to the superintendent's office.

**Q.** What happens if you have had no previous report on a teacher and suddenly in the spring the formal report comes through indicating that this teacher is not working out well and probably should be dismissed?

WAMPLER: We would not expect this to happen. We would expect any principal who had doubt about a teacher to contact us about that doubt and discuss the matter thoroughly long before the second report was made. It would not be fair to do otherwise. For one thing, we expect our principals to work carefully with weak teachers to help them strengthen their work.

**Q.** Suppose you have gotten reports from the principal throughout the year indicating that a certain teacher seemed weak and then in the spring you get a formal report saying that the principal does not believe that particular teacher is going to work out. Does this mean that the teacher is automatically given notice of dismissal?

OREAR: If the teacher's weaknesses are in an area of teaching performance, and if the principal can give us some substantial evidence that he and the central office people have unsuccessfully worked with this teacher, we would feel that it was fairer to the children of this district—and perhaps fairer to this individual teacher—not to prolong his service with us.

WAMPLER: Normally, we have basic confidence in our principals and if the principal is quite sure that a teacher is weak, and has some good evidence to support him, we would go along with him.

OREAR: Sometimes, of course, we do not agree. In a few cases, for example, there is a personality conflict between the teacher and the principal. In such cases we might transfer the teacher to another school for his second year with us.

**Q.** When you don't dismiss a teacher, does this weaken the role of the principal?

WAMPLER: Yes, to an extent it does. We try to avoid having our principals commit themselves to a position before they talk to us. This is especially true in borderline cases.

**Q.** Do you, as district policy, try to weed out weak teachers at the end of the first year, or do you let them serve out their full three years of probationary status?

WAMPLER: If we feel that a teacher is weak, we normally ask him to resign after his first year. On occasion, the teacher chooses not to resign but he knows that he will not be recommended to the board. In those cases, he will get a hearing but usually he will not remain with us.

**Q.** Do you ever have cases at the end of the first year in which you



might say to a teacher, "We do not think this is going to work out, but you are welcome to continue for another year"?"

WAMPLER: On occasion, we do say to a teacher, "Frankly, if we had to make this tenure decision today, we would not recommend you because we don't feel you're strong enough at this point to say that we could live with you for 40 years. But you have another year or two of probation and we're willing to gamble with you if you want us to. We'll give you every help we can this next year if you want to come back under those conditions. On the other hand, you might prefer to look elsewhere now."

**Q.** After that first year, you must have screened out most of the teachers who would obviously not fit into your district's program. Does this mean that the teachers who are invited back for a second year are pretty much assured of getting tenure?

WAMPLER: No, not really. In the first place, you must remember that at the end of that first year we permitted several borderline people to come back. So these people obviously must still be evaluated. More than that, the first year's evaluations are done almost entirely by the individual principals. They can lean on the central office for help, but unless there is trouble with a particular teacher, we do not get very much involved in the evaluation. During the second year, the central office takes a much more active role in evaluating teachers.

**Q.** What is that role? How is it carried out?

OREAR: During each teacher's second year, starting in November, and carrying through March, I visit every probationary teacher in the district and spend half an hour to an hour in each classroom to observe the situation. My prime concern is to have enough background from having actually seen the person at work, that I can better discuss his teaching with the principal. I don't propose in that time I can do an evaluation comparable to the principal's, but then I at

least have some basis for discussing the principal's observations with him.

WAMPLER: Then, if Dr. Orear thought this was a relatively strong teacher, and the principal thought he was relatively weak we would expect Dr. Orear or some other member of the central staff to go back into that classroom. Normally, she's merely corroborating what the principal has found, but this at least is a double check.

**Q.** Do you know, before you go into each classroom, what the principal thinks of the teacher?

OREAR: Yes, because I've usually seen three evaluations that this principal has made of the teachers before I visit. Remember, the regular principal-evaluation of teachers continues during the second and third years of a teacher's probation. As a matter of fact,

it continues throughout a teacher's life in our district.

**Q.** You visit every teacher during this second year, not just the borderline cases?

OREAR: That's correct.

**Q.** Isn't there a tendency on your part to be influenced by what the principal has already written?

OREAR: Yes. Actually, I think such awareness is not a disadvantage in this particular situation, because my purpose is to see whether I can corroborate—or whether I would want to question further—the evaluations that the principal is giving.

WAMPLER: There is another way in which the central staff becomes involved during the second year. We may have anywhere from 50 to 75 teachers coming up for tenure each year. We bring all the second-year teachers in and have

## HOW BELLFLOWER EXPLAINS EVALUATION TO ITS TEACHERS

(the following is taken from the Bellflower Teachers' handbook)

1. The principal is responsible for teacher evaluation.
2. The principal or assistant principal holds not less than two evaluation conferences with each probationary teacher annually.
  - a. The written analysis used in the conference is to be prepared on the regular district form.
  - b. A duplicate copy is to be given to the teacher at the conclusion of the evaluation conference.
  - c. All copies are to be signed by the principal or assistant principal. The teacher, too, should sign them, if only as an indication that he has read the appraisal.
  - d. The November evaluation is primarily for the teacher and the principal only. However, for first- and second-year probationary teachers whose re-employment is at all doubtful, the November evaluation is to be submitted to the superintendent. For all third-year probationary teachers, November appraisals are sent to the superintendent.
  - e. The March evaluation is official for all probationary teachers and is always submitted to the superintendent. From his office it goes to the deputy superintendent, educational services, and then to the assistant superintendent, special services, for filing.
  - f. March evaluations for probationary teachers are to be completed and submitted to the superintendent prior to spring vacation. Also tenure committee meetings will be held prior to the vacation. Thus the probationary teacher can know early what recommendation the superintendent expects to make concerning re-employment.



**"Three years, we feel, is an adequate time to learn whether or not a teacher is going to be a good addition to your permanent staff."**

WAMPLER

a full and free discussion with them. We review with them how they are evaluated in this district. We tell them what we are concerned about, what we think is important. And we give them a chance to ask questions. After all, this is something of a year of decision for both of us. The borderline teacher who survived the first year has got to look a lot better the second year to have a chance to come back. And, furthermore, the individual teacher who has been with us for two years has begun to learn whether or not he wants to stay in our district. Moreover, he may have some questions about individual problems of his own which might or might not affect our willingness to let him stay. For example, a teacher in his forties might want to know whether we will hold his age against him.

**Q.** Who is involved in this meeting?

WAMPLER: Dr. Orear and myself hold it with the probationary teachers. The principals are not usually involved.

**Q.** So in the first two years of probationary status in Bellflower, a teacher is formally evaluated by the principal at least four times, has had a chance to meet you in a group meeting and has also been evaluated and visited by Dr. Orear. And the weaker teachers, as you have indicated, are weeded out. Does this mean that the third year is simply a throw-away—that any teacher who survives the first two can pretty much depend on being awarded tenure at the end of the third?

WAMPLER: No, although we do attempt to eliminate most of those who have to be eliminated before the third year. But, on occasion, as late as the third year, there will be someone for whom tenure status seems an unwise choice. Also, every teacher must undergo a physical examination during his third year.

Finally, we have a major evaluative conference in the spring of the teacher's third year. It is at this conference that a decision is made formally to recommend or not recommend an individual teacher for tenure.

**Q.** Who participates in this conference and when does it take place?

WAMPLER: All of the principals with whom the individual worked during his three years in Bellflower will attend this conference along with Dr. Orear and myself. Also sitting in on this conference will be a teacher selected by myself on recommendation from the teachers' association. This is a rather unique aspect of our evaluation but we feel that it is of value.

OREAR: This is a carefully selected teacher who attends this conference. Each year, a team of four teachers is chosen to sit in on the evaluations. There is one each from the high school level, from junior high school, from intermediate grades and from the primary grades. These are teachers of outstanding ability—all with tenure in our system. These teachers visit classrooms of all the third-year teachers of their own grade level. They spend about a half-hour in each classroom. We cannot presume that in that half-hour they can know how strong a teacher is, but at least the visit acquaints them with the person and gives them a chance to see him in action. Then, when that selected teacher sits down with us in conference, he is able to take an active role in the discussions.

**Q.** Is the name of the teacher who is going to take part in the evaluation known?

OREAR: Yes. The appointment of these teachers is announced through our house organ. And then, of course, when they visit the classrooms, the probationary teachers are quite aware of the reason they are there.

**Q** **These teachers have had no administrative training. How do you help them to judge teachers?**

OREAR: I work with the team of teacher-evaluators for about an hour before they make any visitations. We discuss the kinds of things they would want to look for. Ordinarily, they tell me what they think they should look for, and we find most of the time that there is very little difference in our outlook. These are all permanent teachers so they've had a number of evaluations themselves and a number of conferences with their principals.

**Q.** And these teachers are given access to the reports that have been made on the probation teachers?

WAMPLER: Yes, at this conference everything is open and above-board. We discuss the teachers forthrightly with, of course, the understanding that what is said is not to be shouted to the world.

**Q.** Do you find that these teachers come up with a different point of view on the tenure candidates than might be obtained if they were not present?

OREAR: Occasionally they will say that they have seen one or another of the characteristics being discussed. Or, they might very well say, "I've worked with so-and-so and from my experience this is or is not true."

WAMPLER: We think we have put these teachers in a relatively difficult position because they feel in a sense that they must be fair to the profession and at the same time that they are there to help and to protect the probationary teachers. They don't know what team they're on, so to speak.

**Q.** If you do not recommend a teacher for tenure, doesn't this tend to weaken the position of the



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evaluating teacher with his peers? Isn't he considered something of a deserter to the cause?

WAMPLER: It is not the teacher's job to vote on the matter of whether or not to give tenure. And this is known throughout the district.

OREAR: Actually, no vote is taken at all. Dr. Wampler will go around the room and ask me, the principals and the evaluating teacher our opinions of the probationary teacher. But there is no formal vote. Usually there is agreement. If there is disagreement, very often we will postpone the decision and some of us will go back and visit the probationary teachers.

**Q.** Do you hold an individual conference for each teacher?

WAMPLER: Yes. Each one lasts about half an hour. The meetings are held in our board room. We schedule ourselves on an eight-hour day—half an hour at a time with an hour off for lunch. This is all done in late March and early April—before our spring vacation.

**Q.** So that you spend approximately a half-hour on each of 40 or 50 teachers coming up for tenure in any given year. A number of your teachers, your principals and yourselves attend the conferences, make some visitations, and spend time training both teachers and principals in making their own evaluations. This is a great expenditure of time. Is it worth it?

WAMPLER: We think it's awfully important that the tenure decision be made carefully. After all, we are deciding to live with a teacher for 30 or 40 years. When you come right down to it, the essential difference between a good school system and a bad school system is not money, is not buildings, is not administrators. The difference is in the teaching staff. I don't think any decision we make is more important than the one to give tenure.

**Q.** After this conference, how are teachers notified whether or not they have received tenure?

WAMPLER: Actually, as a result of these conferences, all we can do is

to recommend to the board that a teacher be given tenure or not be given tenure. Those teachers who are to be given tenure, will usually hear nothing more until the board has officially confirmed my recommendations. In cases where we are not recommending tenure, we try to get to each individual teacher before the time the board meets so that he will have an opportunity to resign if he prefers.

**Q.** Who sits down and talks to the individual teacher?

WAMPLER: The principal is the fall guy there. He's expected to carry the story to the teacher. Of course, very frequently either Dr. Orear or I have a subsequent conference with the teacher who has not been recommended. But this is at his instigation. Of course, it should not come as a shock to a teacher when we do not recommend him. He should have been aware all during his three years of probation that we were having problems and that his was a borderline case.

**Q** *Your principals meet with every teacher who is not being recommended for tenure before the board meeting. Those with whom they do not meet know pretty well that they have been recommended for tenure. What happens if the board decides to give tenure to these teachers?*

WAMPLER: In my recommendations to the board, I feel the only fair thing I can do is to say in effect, "We don't claim that all of these teachers are equally capable. These are the people we're recommending, but frankly, some of these, we feel, are only average." The board may well ask who the average teachers are and why we are recommending them. In other words, this board meeting—and you understand that this is a closed meeting—would include pretty full discussion of all teach-

ers being recommended for tenure. Normally the board has confidence in the superintendent and it's relatively rare when it doesn't go along with my recommendations. In only two or three cases has there been any reversal of my recommendation and in each of these the problem hinged on the person's physical condition, not his teaching competence.

Now, if the board does refuse to grant tenure to a teacher I have recommended, I suppose we would turn the job of notifying the teacher back to the principal. This, of course, is a difficult situation, but it is very rare.

**Q.** When a teacher has been granted tenure in your system, is this the end of being evaluated?

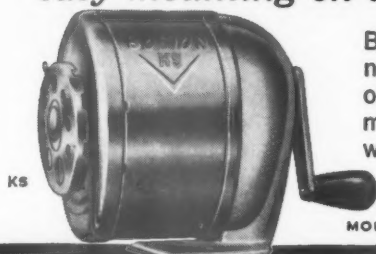
WAMPLER: It becomes a little more difficult, but evaluation does continue. We tell these teachers when they are granted tenure—and we have been telling them for the three years of their probation—that they are not perfect. We try to pinpoint their weaknesses for them and help them to work on them. Just being granted tenure does not overnight make one a perfect teacher. All teachers—and all administrators—have weaknesses. They would be foolish to stop trying to improve.

**Q.** How is your system working? Do you feel that you have been successful in granting tenure only to teachers whose services you really want on a permanent basis?

WAMPLER: Let me say that I think education is better and stronger in California because we have a good tenure system. Sometimes, even with our procedures for evaluating teachers, we do get a weak one in the system and this we just have to live with. But generally speaking, we feel that three years is an adequate time to learn whether or not a teacher is going to be a good addition to your permanent staff. If a school district is willing to spend the time and the effort to do a complete evaluation during this time it should not have great difficulty in selecting the right teachers to be granted tenure. **End**



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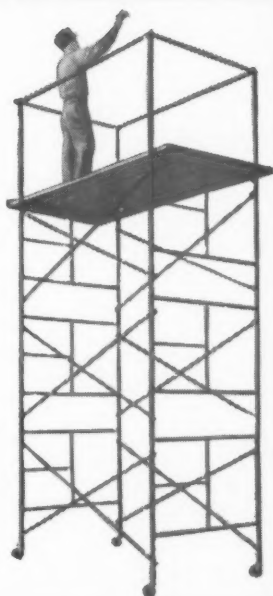
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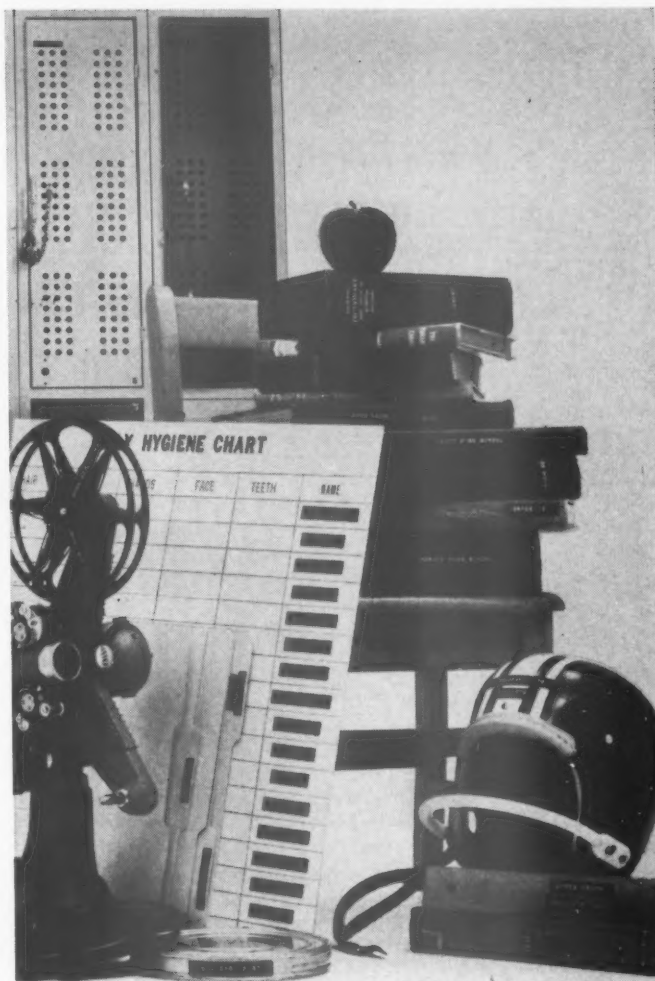
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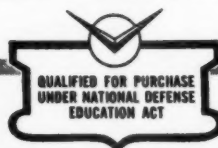
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continued from page 64

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**Shopping for food service supplies?** A 78-page catalog being distributed by Edward Don & Co. illustrates and describes food service equipment and cafeteria supplies for schools. The catalog includes china, glassware, eating utensils, trays, aprons, towels, cutlery, pots and pans, etc. Safety and sanitation supplies are also described.

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*News from the business firms serving your schools*

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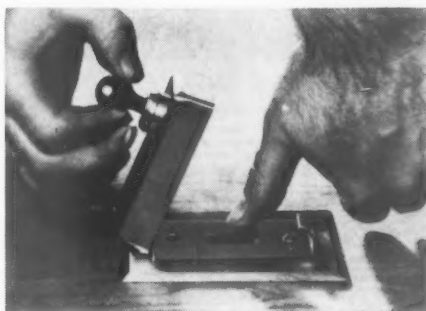
When dry, the compound can be filed, drilled or sanded without chipping. It comes in individual rolls, approximately five inches wide and up to five yards in length. It is available only in 20-pound cartons.

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(Circle number 700 for more information)



with words. The organization of the material is founded on basic mathematical understandings.

For more information, circle number 903 on the Reader Service Card.

### Wall covering

An easy-to-maintain wall covering, available from Armstrong Cork Co., resists fading and staining and, since it is heavier than most wall coverings, covers wall irregularities better. It is

less subject to damage caused by impact, according to the manufacturer.

A latex-asbestos composition, it does not shrink or stretch. Since moisture does not affect it, the cover can be installed on new plaster walls. It is available in three surface textures—suede, knobby and striated. Each design is offered in 20 colors, and it is available in 0.03- and 0.04-inch gauges and in 54-inch widths.

For more information, circle number 876 on the Reader Service Card.

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(Circle number 761 for more information)

### Lab wheels into class

A mobile language laboratory that can be wheeled into classrooms is being manufactured by Radio Corp. of America. Designed primarily for ele-



mentary and junior high schools, it can be used by groups of up to 10 students for "listen-respond" instruction in foreign languages.

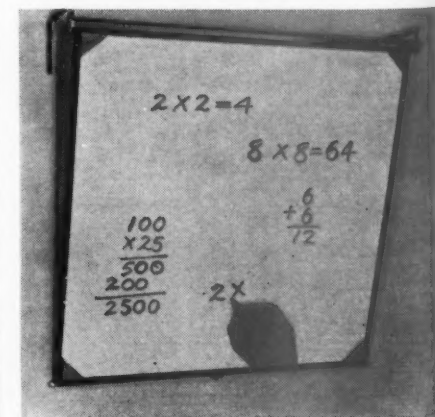
The unit includes a tape recorder-player, 10 plug-in headsets with a transistorized earphone amplifier and attached boom microphone, and a 10-position rotary switch permitting the instructor to converse with any of the students over the audio system.

For more information, circle number 887 on the Reader Service Card.

### Converts projection screens

A set of wall brackets, manufactured by the Da-Lite Screen Co., Inc., will hold a wall projection screen at a correctly slanted angle so that it can be used with overhead projectors. Since the viewing surface, using the brackets, is angled downward, there is no distortion of the picture and no strain on the eyes.

The screen can be extended up to 24 inches from the wall at the top, in order to adjust to the angle as desired. For regular projection, the screen







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West Hempstead, N. Y.

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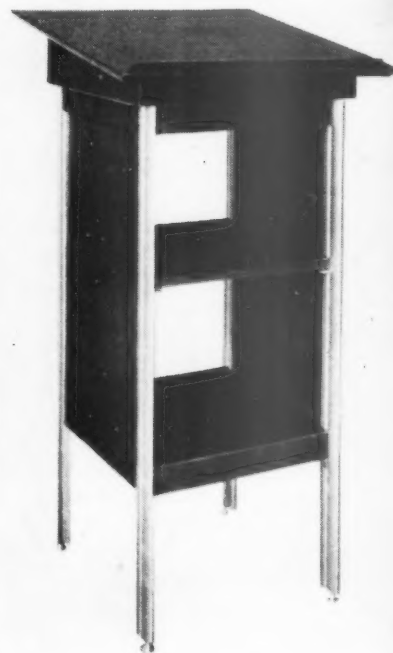
For more information, circle number 855 on the Reader Service Card.



#### Designs for libraries

Bro-Dart Industries is introducing a new line of modern library equipment for schools. According to the manufacturer, there is increased emphasis on flexibility, efficiency and economy.

All the cabinetry is made of



anodized aluminum extrusions and pre-finished wood panels. This includes tables, chairs, dictionary desks, etc. Shelving units are available in free-standing or wall-attached styles. Some of the equipment is motorized. A book truck, for example, is powered with a rechargeable battery.

For more information, circle number 868 on the Reader Service Card.



#### Molds meat automatically

The Hobart Manufacturing Co. is introducing a line of meat molding equipment that includes manual, semi-automatic and fully automatic molders and patty-forming machines designed to operate on standard meat choppers.

One unit is a machine that stacks up to 60 ground beef patties on interleaved paper as the meat is being ground. The size of the patties can be adjusted. Another machine extrudes fat trimmings on a sheet of cellophane for use as a wrapping on rolled roasts.

SCHOOL MANAGEMENT



Hobart is also manufacturing a fat-testing kit that enables food service operators to determine the percentage of fat content of their ground beef.

For more information, circle number 864 on the Reader Service Card.

■ ■ ■

### Rostrum amplifies voice

Well suited for large meetings, this self-contained public address system doubles as a rostrum. Made by Perma-Power Co., it is battery-operated.

The unit weighs less than 30 pounds and requires no complex procedures for making it ready for use. The



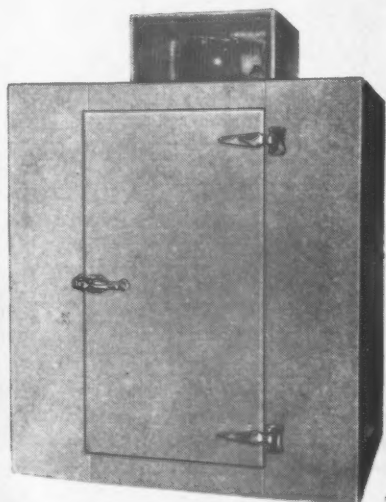
speaker opens the case, plugs in the microphone, turns on the unit and begins his talk. Two loudspeakers are provided, and are equipped with anti-feedback housings.

For more information, circle number 882 on the Reader Service Card.

■ ■ ■

### Cafeteria freezer

Nor-Lake, Inc., has developed a 72-cubic foot walk-in freezer for storage of frozen foods. The cabinet measures six feet high, 62½ inches wide and 48 inches deep. Its three-



quarter hp refrigeration unit can be mounted on top of the freezer.

Finished in white baked enamel, the freezer has a 20-gauge steel exterior and a 22-gauge galvanized interior. It is insulated and all hardware, including an inside releasing handle, is plated with cadmium.

For more information, circle number 885 on the Reader Service Card.

■ ■ ■

### Porcelain chalkboard

Greater scratch resistance, easier erasure, elimination of ghosting and chalk traps, and a suede-like surface which makes the boards easier to write on are some of the advantages of a lightweight 24-gauge porcelain enameled chalkboard manufactured by Thomas Industries, Inc.

The boards are available in Pacific blue, charcoal gray, fawn tan and medium and dark green. Size ranges include 36- to 48-inch heights, and lengths up to 144 inches. The new boards come in a variety of backing materials, including foil-backed Masonite, exterior grade plywood with aluminum backing, and Insulite, to meet all specification requirements.

For more information, circle number 893 on the Reader Service Card.

■ ■ ■

### Moves dishes, utensils

An all-purpose unit designed to transport dishes, trays, bulk milk cans, and dishes with dome covers, has been announced by Lincoln Mfg. Co. A bin-type unit, open at the top and one



side, the cart features sliding dividers to adjust for varying sizes of dishes or utensils. Stainless steel construction, rubber-tired swivel wheels and rigid frame design are other features of the unit.

For more information, circle number 891 on the Reader Service Card.

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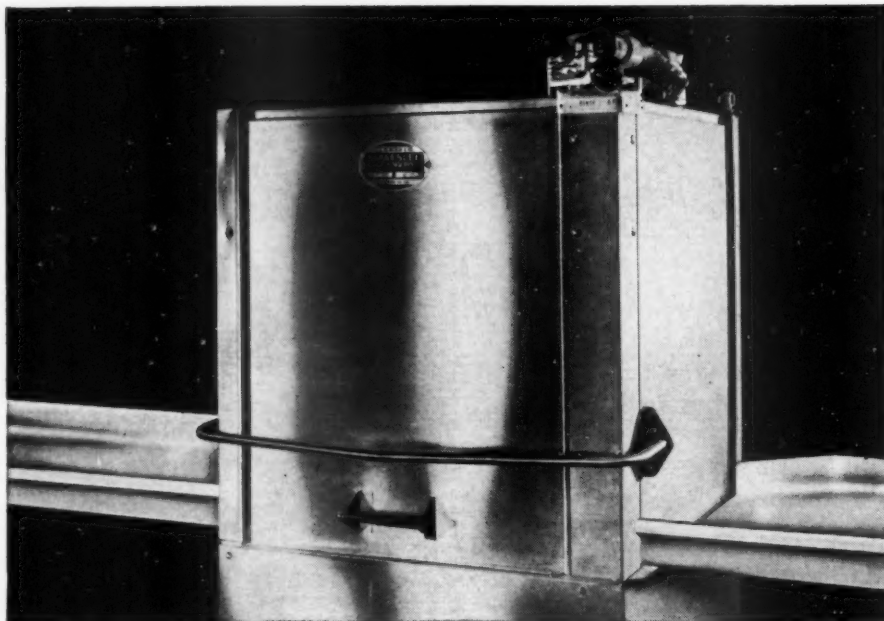
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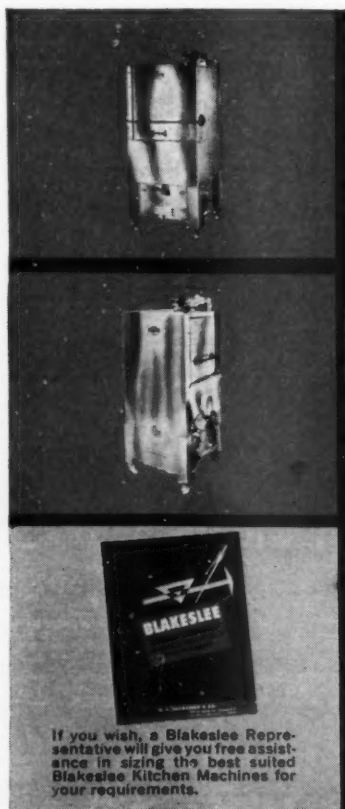




## FOOLPROOF TIE-BAR HANDLE ...TROUBLE-FREE DOORS!

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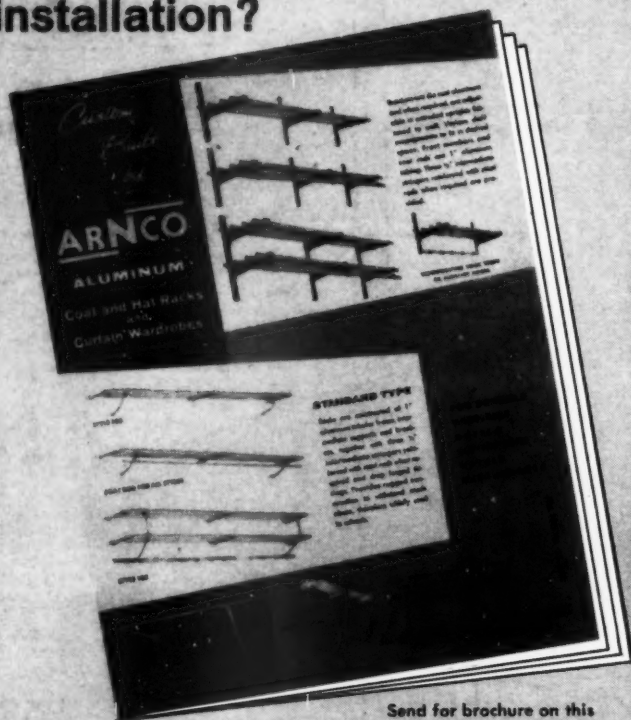
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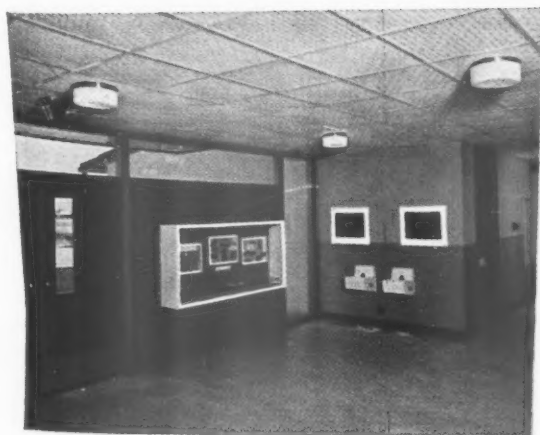
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